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JANUARY, 1947

THE VOLTA REVIEW

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A Special Number

This issue is devoted largely, though not entirely, to the subject of making better use of impaired hearing. Finding the right instrument receives its share of emphasis. Using that instrument to the best advantage is quite another matter; and it, too, is given special attention. There are articles to read, study, and keep for reference.

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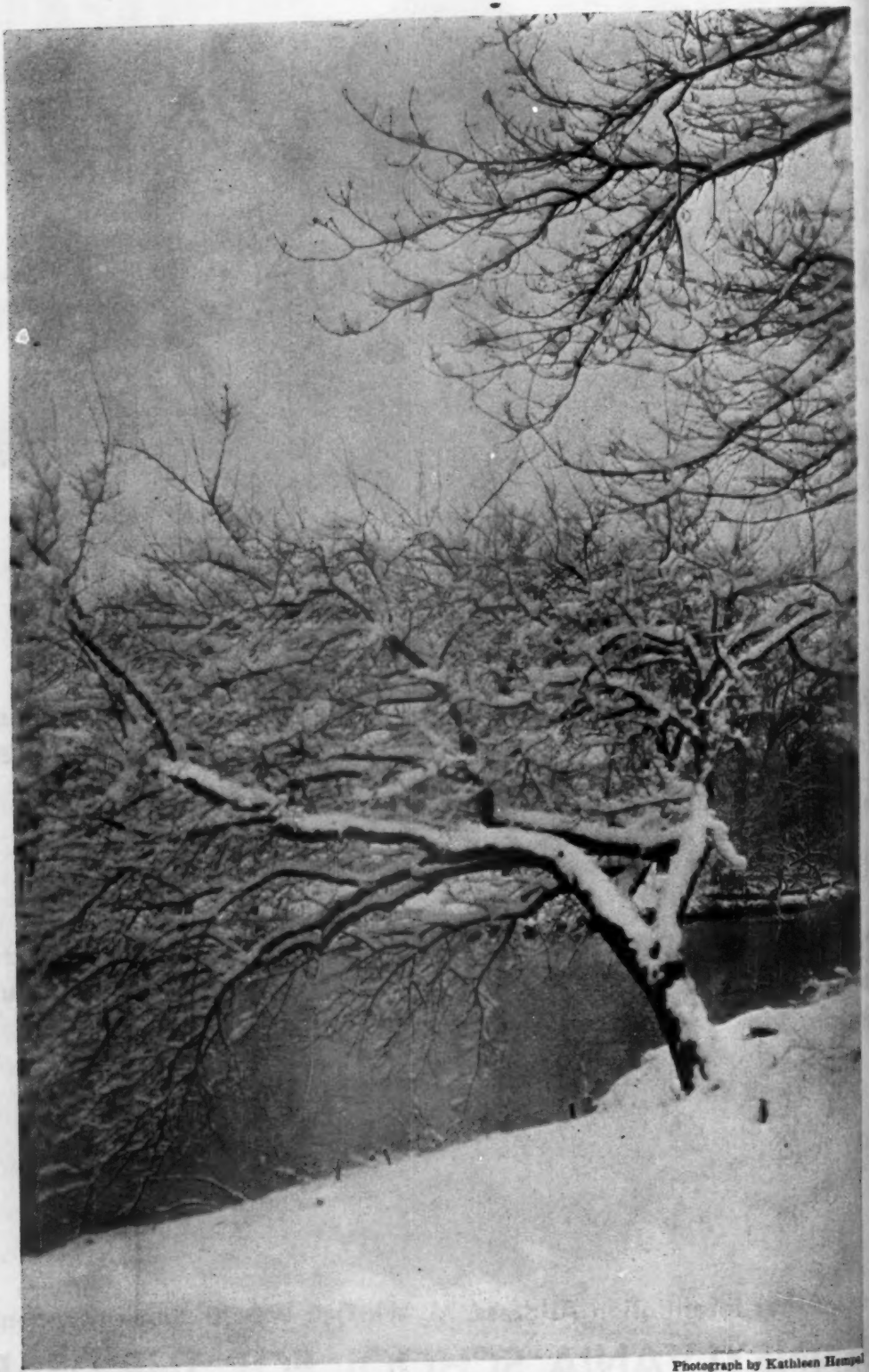

Photograph by Kathleen Hempel

THE PLUM TREE IN WINTER

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Vol. 49 JANUARY, 1947 No. 1

Testing the Performance of Hearing Aids

By CLARENCE V. HUDGINS, Ph.D.

THE primary purpose of hearing aids is to restore to the person with impaired hearing the functional use of his hearing. Especially, the hearing aid should restore as nearly as possible normal speech reception. The degree to which this objective is achieved is a measure of the performance of an instrument. The relative severity of the hearing loss and its type, as well as the quality of performance of the hearing aid, determines the degree of success of auditory rehabilitation. Since little or nothing can be done concerning the nature of the hearing impairment itself, the restoration of the auditory function rests largely upon the performance of the hearing aid.

We might consider, therefore, the important characteristics of hearing aids which render them useful as aids to hearing, how these characteristics combine to bring intelligible speech to the hard-of-hearing under diverse conditions, and how well present-day vacuum tube instruments perform under rigidly controlled test conditions.

The important characteristics of hearing aids may be listed as follows: (1) Power: The instrument must produce sufficient power, or acoustic energy, to override the patient's deafness and to render speech intelligible. (2) Sensitivity and Amplification: It is highly desirable that the instrument transmit intelligible speech that is spoken at ordinary conversational levels. Even relatively weak speech sounds, therefore, must be amplified sufficiently to reach the speech intelligibility threshold of the patient. This does not necessarily mean that the instrument restore to the patient a normal degree of hearing acuity; this objective is most difficult, or impossible, to achieve. (3) Tolerability: Intelligibility of speech must be attained without pain or discomfort to the wearer. This means that loud sounds, or loud speech, occurring near the microphone of the instrument must be limited in some manner in order that it may not reach the pain threshold of the ear. (4) Fidelity: The instrument should transmit speech with a reasonable amount of fidelity, which means with a minimum of distortion.

There are other characteristics such as size, weight, cost, battery drain, availability of servicing, etc. These, however, may be regarded as being of secondary importance from the standpoint of performance.

The question as to how well modern hearing aids meet these requirements has been partly answered at least, by a program of research[1] which was designed to explore the problem and to compare the performance of available hearing aids on the basis of these characteristics. The instruments selected for testing were all of the vacuum tube type, and products having the approval of the Council of Physical Medicine of the American Medical Association as of October 1944. The instruments were purchased from stock of local dealers. Where several models of a given instrument were

[1]The material of this paper is taken from an experimental study conducted at the Psycho-Acoustic Laboratory, Harvard University, S. S. Stevens, Director, under Contract OWMsr-658. This contract between the Office of Scientific Research and Development and Harvard University was supervised by NDRC, Section 17.3. The work was under the supervision of Dr. H. Davis, Harvard Medical School, and conducted by C. V. Hudgins, G. E. Peterson, J. E. Hawkins, and D. A. Ross.

available only those models were chosen for the tests which, according to the dealers' own statements, were most frequently recommended to the hard-of-hearing.

Each instrument was tested with two or more earphones when available, and with minimum (or intermediate) and maximum volume-control settings. In the case of instruments having variable tone-control settings, the setting giving the most nearly "flat" frequency characteristics and that giving the greatest high tone emphasis were tested.

Artificially Deafened Subjects

In evaluating the performance of hearing aids it would be desirable perhaps to use hard-of-hearing subjects. The design of our tests was such, however, that it would have been necessary to select several groups of listeners, each group having an identical type of loss, and each group having a different degree of severity of loss ranging from very mild to very severe. The difficulty of obtaining homogeneous groups to meet these requirements is readily apparent. For this reason a crew of trained listeners with normal hearing was used for all tests. It is possible to render listeners functionally deaf in any desired degree by means of a masking noise presented at different levels of intensity. We know from other experiments in related fields that by using what is commonly called a "white," or thermal, noise (one that contains all audible frequencies at equal degrees of intensity) it is possible to simulate any degree of hearing loss in normal hearing subjects. Furthermore, the method insures a homogeneity of hearing loss within a group, impossible of achievement among hard-of-hearing subjects, and its severity can be controlled independently.

The hearing aids to be tested were mounted in a sound proof box one at a time. A loud speaker was mounted in the box, over which recorded speech was presented to the hearing aid. The earphone of the hearing aid was coupled in a circuit which transmitted the speech to the listeners exactly as it would be heard by a wearer of the hearing aid. Thus it was possible to test a single hearing aid on a group of listeners at a single setting instead of having to test each listener individually.

Recorded speech (continuous discourse read by a male voice) was presented at the microphone of the hearing aid by means of the loud speaker. The speech output from the loud speaker could be varied in intensity from 10 to 100 decibels. (SPL).

The usual procedure for a single test was as follows: (1) The masking noise was presented to the listeners by an independent circuit at a constant level inducing the desired degree of simulated deafness. (2) Beginning with a very weak level the speech was presented and slowly increased in intensity until it was *just intelligible* to the listeners above the masking noise. (3) The intensity level at which speech was just intelligible to the listeners was taken as a measure of the performance of a particular hearing aid at a given degree of simulated deafness. In other words, each instrument was tested for its capacity to override a given amount of "deafness," and the weaker the speech level required for this task, the better the instrument was considered to be. Trials were repeated at different degrees of "deafness" until each instrument had been tested for its maximum capacity.

Eighteen different models of hearing aids, the products of 12 manufacturers were tested; making a total of 34 different combinations of earphones and tone control settings. The method gave information concerning the gain of the instruments, maximum amount of deafness each would override, and the relative sensitivity of each at low input-speech levels.

A second aspect of performance of hearing aids was studied by making physical measurements of the so-called input-output characteristics for speech. The purpose of these tests was to show how the instruments performed in terms of amplifications. Recorded speech was presented to the instruments in the same manner as that described above. But instead of having it transmitted to a crew of listeners the output was mea-

(*Continued on page* 60)

Audiometric Testing of Hearing Aids

By ELIZABETH HUGHES JOHNSON

THE proper fitting of hearing aids is a very important matter to a large number of people. The advice[4] to consult "a competent otologist or recognized hearing aid clinic for guidance in securing a well fitted hearing aid" is theoretically the best to follow. However, most people have no access to the testing clinics which use approved equipment for evaluating hearing aids. Actually such equipment is rare, and few hard of hearing individuals or otologists are in a position to make use of it. In all probability it will be many years before hearing aid testing clinics will be available to even a majority of those needing such services.

In the meantime the problem of evaluating and choosing hearing aids increases in seriousness as more and more people become willing to wear them and more manufacturers enter the field. Otologists, Leagues for the Hard of Hearing, and Schools for the Deaf are already besieged with requests for help.

The attempts of the Acoustic Department of the Illinois School for the Deaf to furnish such assistance have extended over a number of years. Many people outside the school have received aid in evaluating hearing aids, as have a large number of our own pupils.

With each additional request our responsibility for choosing the most suitable hearing aid has grown. Our problem has been increased by the fact that with the exception of two audiometers, no equipment of any kind is available for measuring the performance of hearing aids.

Various intelligibility tests have been our best means of judging the merits of the hearing aids being compared. By January, 1945, hundreds of discrimination and intelligibility tests had been given. No pure tone test with the receiver of the audiometer placed directly against the microphone of the hearing aid had been used, due chiefly to the statements of various writers concerning the inaccuracy of this method.

Galloway states[2]: "The reason that it is inaccurate, according to Dr. West, is that the intensity of each of the test tones of the audiometer has been calibrated to the more or less fixed characteristics of the resonance chamber formed by placing the receiver against the ear. Placing the receiver against the microphone of a hearing aid forms a resonance chamber of entirely different characteristics to which the intensity of the test tones are not calibrated. The reason for the inaccuracy becomes quite obvious when we recall that microphones of hearing aids are housed in cases of different sizes, shapes and material."

Senturia, Silverman and Harrison[5] state that "one of the major obstacles in the adequate evaluation of hearing aids has been the lack of satisfactory testing equipment. In most reports the simple expedient of coupling the transmitter of the hearing aid to the ear piece of the audiometer has been utilized for appraising actual performance. This evaluative technique is scientifically incorrect since it results in an acoustical mismatch and, in addition, fails to simulate the normal patterns of auditory communication."

In 1941 L. A. Watson supported this method of evaluating hearing aids, stating[6]: "It is possible to retest the effectiveness of a hearing aid with the audiometer; that is for the otologist to get some indication as to whether the patient is getting what he should out of an instrument." Watson presented an example of an audiogram made in this manner showing the patient's curve without a hearing aid and two curves which represented his ability to hear the tones of the audiometer through two different hearing aids.

Watson continued: "Another retest can be made of the hearing aid with the microphone circuit. Hold the receiver of the

audiometer directly against the microphone of the hearing aid. When the patient has the hearing aid adjusted, make a retest for spoken and whispered voice. . . . Hold the receiver tightly against the transmitter face of the hearing aid, then measure with the microphone circuit the lowest level at which the subject gets spoken and whispered voice. The lowest level at which he can get whispered and spoken voice with the unaided ear has been previously determined. You now have a comparison showing the increased amplification by the hearing aid."

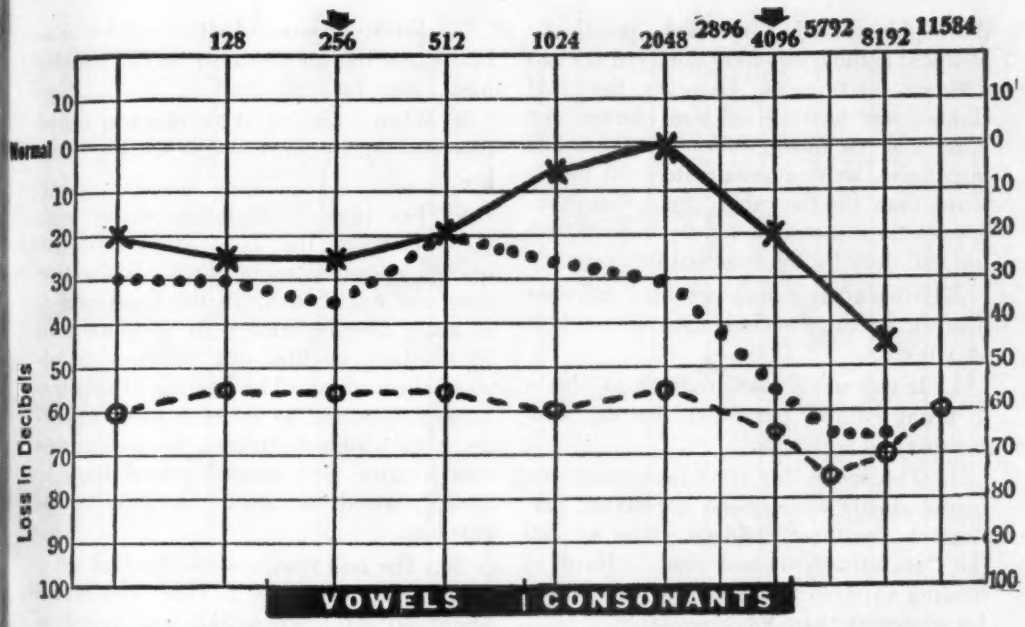
However, in 1946 Watson in personal correspondence completely repudiated the above practice with the following statements: "As regards the method of giving an audiometric test or attempting to measure the gain or amplification of the hearing aid by placing the audiometer air conduction receiver over the face of the hearing aid transmitter, although we used to use this method it is definitely unsound and illogical because it creates an impedance mismatch between the microphone and receiver. The amount of gain or amplification will vary tremendously depending upon the effectiveness of the coupling made between the audiometer receiver and the face of the transmitter as compared with another. A transmitter which made a perfect coupling for the round face of the audiometer receiver would show a far better response than an oblong type of transmitter in which there was a little leakage around the coupling between the audiometer receiver and the grill face of the transmitter. . . . The method is, in a sense, worse than any method and is entirely unreliable and gives results which are not correct."

Hull,[3] in discussing the problem, presents five criticisms. Four of these are actually shortcomings of all audiograms whether made directly through the ear or through a hearing aid. His fifth reason why "the scheme is not satisfactory is that a peculiar effect occurs when the receiver of the audiometer is placed against the transmitter of the hearing aid. Some sounds are reinforced, and others are weakened. It is very difficult to place the two units together so that this coupling effect is uniform on different hearing aids, but even if it were, the resulting audiogram would be deceptive, and the poorer looking audiogram might actually be produced with the better of two hearing aids."

The discrimination and intelligibility tests which we had been using provided valuable assistance in choosing suitable hearing aids. However, when one hearing aid proved superior to another we had practically no clues as to why this was so and a great deal of time had been used in fumbling with one fitting after another. Moreover, although every effort was made to have the testing conditions identical for each test, we could not, without special equipment which was not available, be sure that the voice level or background noise was the same from one test to the next.

In January, 1945, seven individual hearing aids were purchased by the school. It was decided to test each of our six senior pupils in the Acoustic Department with at least five different makes of hearing aids. It was also decided that as part of our examination we would use a pure tone test with the receiver of the audiometer placed directly against the microphone of the hearing aid! Such tests had been made at the school since 1939 but not for evaluating and choosing hearing aids.

Each pupil was given a regular audiometer test by an experienced audiometrist, Miss Margaret Breakey, to determine hearing for pure tones by air and bone conduction. The earphones were then fitted by the salesmen to their satisfaction and the pupil was retested with the audiometer to determine his hearing for pure tones with the hearing aid on. During this second test the hearing aid was laid on a soft pad on a table with the audiometer receiver resting directly on the microphone. A thick layer of sponge rubber covered the receiver, permitting a rather close coupling. The volume control was turned on all the way after the receiver had been placed on the microphone. In later series of tests the microphone rested on an ordinary bed pillow and was covered by a second pillow.



Audiograms of R. R. who has a congenital impairment and entered school without speech. The line o---o---o represents the natural audiogram made directly through the better ear. The other audiograms were made through the most satisfactory aid, A, x——x——x, and the least satisfactory aid, E, ...

Scores:	Aid	Numbers	Vowels	Consonants	Sentences
	A	100	100	80	95
	E	100	100	30	35

Following the second audiometer test, the Ewings' discrimination test,[1] which they call their Short Intelligibility Test, was administered. This consists of ten double numbers which are used mainly as a warming-up exercise, ten vowel sounds and ten consonant sounds combined with the sound *aw*. This was followed by intelligibility tests of five sentences with a total of thirty-three words. The numbers, vowels and consonants of the Ewings' test were presented in a different order for each fitting. Different groups of test sentences were used for each fitting.

During the discrimination and intelligibility tests the microphone was placed exactly five feet from the examiner and held in a vertical position facing the examiner. No noise meter was available but each sound or sentence was spoken with residual air and the possibility of lip reading was excluded. All the intelligibility tests were made by the writer in the same room.

During the period that we have made use of both types of tests (intelligibility and pure tone through the hearing aids) various points have gradually become apparent:

1. To judge the intelligibility test scores the examiner *must* know the ability of each child to interpret speech sounds and language through hearing. Even when the amplification provided is thoroughly adequate, the results are limited by the child's ability to recognize speech sounds and by his level of language development at the time of the test. A score of 40 may represent maximum performance for one child while only scores in the 90's could be considered satisfactory for another. For pupils of the Acoustic Department this information was available but had to be determined carefully for new pupils or for persons outside the school.

2. The tests tended to support each other in most instances, although not always. In a very few cases there were wide discrepancies. For instance, in one case

thoroughly satisfactory and practically identical audiograms were obtained for two different instruments. However, the child claimed one hearing aid was blurred and noisy and her intelligibility scores for this instrument were approximately 30 points lower than for the other. Such distortion apparently is not detected by a pure tone test but only by the intelligibility tests.

3. Almost any fitting provided sufficient hearing for the discrimination of numbers or vowels.

4. It was much more difficult to obtain a fitting which permitted hearing consonants and sentences.

5. The scores for consonants and sentences usually were closely correlated, particularly for those children whom we call the "acoustically-trained deaf." Hard of hearing children had scores a little higher for sentences than for consonants.

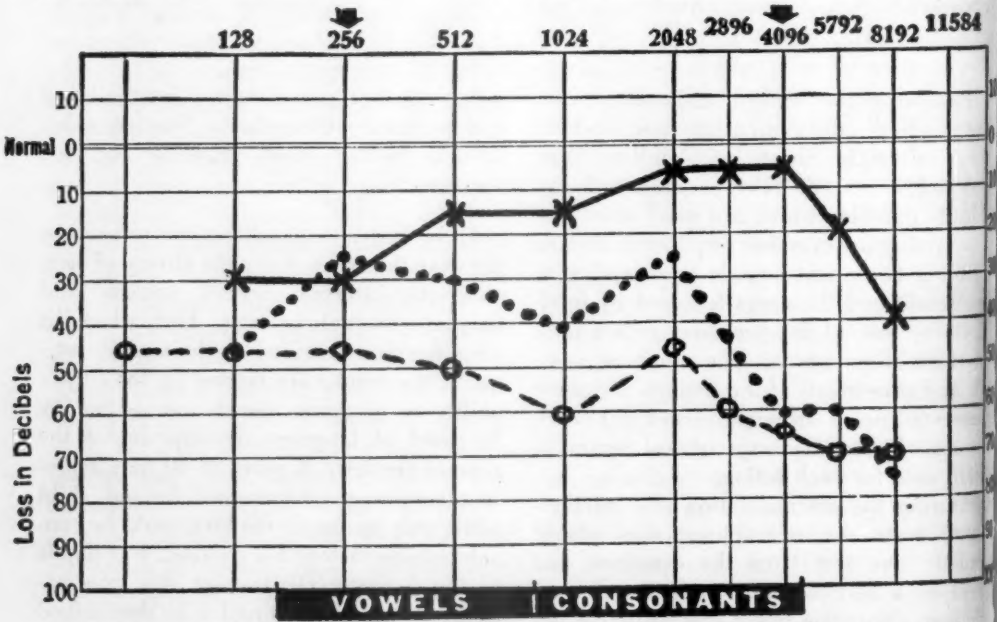
6. Greatest intelligibility seemed to occur when the tones from 2048 to 4096 cycles were heard best.

7. When a tone of 1024 cycles was heard best the intelligibility scores usually were lower but still good.

8. When a tone of 512 cycles was heard best the intelligibility scores usually were low.

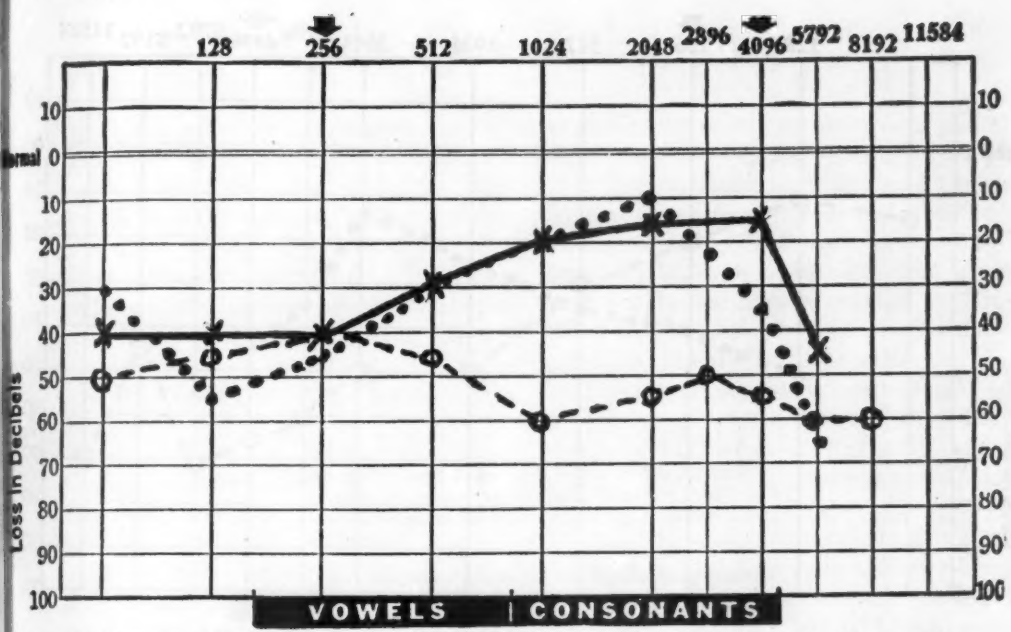
9. For high intelligibility scores with these children the most important frequency appeared to be 4096. When this tone was heard, through the hearing aid, at losses ranging from 0 to no more than 20 decibels, intelligibility scores were almost always high. The hearing of this frequency appeared to be of greater importance to children trained to understand speech after they entered school than to those classed as hard of hearing at entrance.

10. The best results were obtained when frequencies below 512 were suppressed about 30 d.b.; when 512 was heard at between 20 and 30 d.b.; and when there was a lesser loss at each succeeding octave with 4096 heard best.



Audiograms of B. B., who has an adventitious conduction impairment. The line o---o---o is the natural audiogram made directly through the better ear. The audiogram ..... was made through hearing aid E, judged by intelligibility scores to be the least satisfactory of six aids tested. The audiogram x——x——x was made through hearing aid A, a bone conduction unit which was considered the most satisfactory of those tested.

Scores:	Aid	Numbers	Vowels	Consonants	Sentences
	A	100	100	90	99
	E	100	60	10	65



Audiograms of K. C. showing hearing in the better ear without a hearing aid and two audiograms made through two models of the same hearing aid. Fitting E, ..., was considered unsatisfactory because of the loss at 4096 and because of low intelligibility scores. Fitting A, x——x——x, was built for K. C. when the examiners requested a hearing aid which would raise the audiogram 20 to 30 decibels at 4096.

Scores:	Aid	Numbers	Vowels	Consonants	Sentences
	E	100	90	70	77
	A	100	100	80	89

11. Test results were not available to the children until a preference was stated at the conclusion of the whole period of examination. However, the children in every case expressed preference for the instrument on which they made their highest or next highest intelligibility scores. Although this fact might seem to eliminate the advantage of making audiograms through the hearing aid, we felt we were able eventually to recognize and eliminate by means of these audiograms many unsatisfactory fittings without going through the time-consuming intelligibility tests.

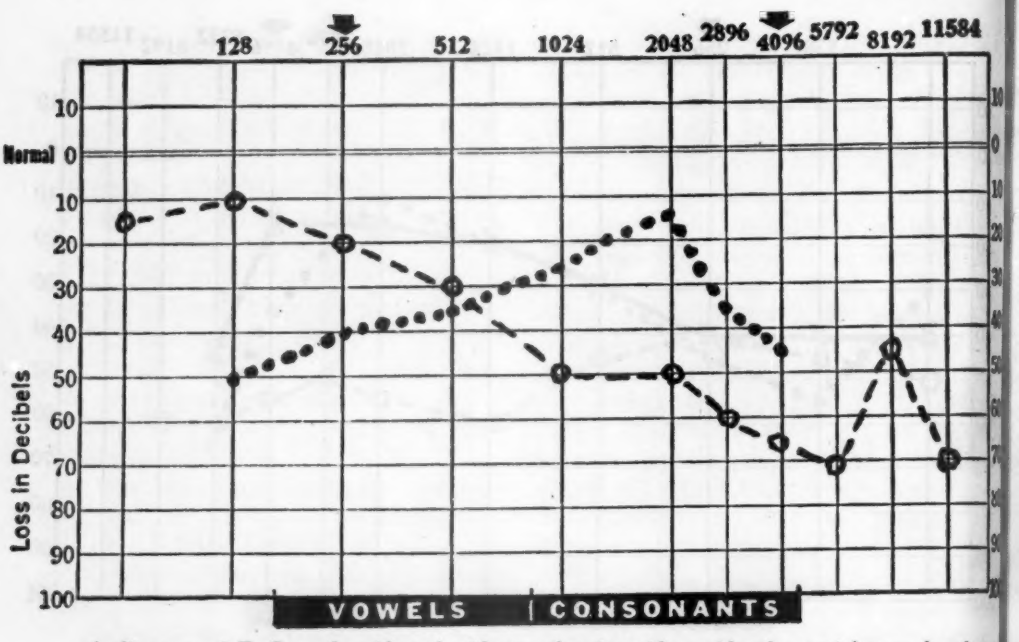
12. In one case where even the best fitting available was only fairly satisfactory, at our suggestion a special instrument was built which raised the audiogram at 4096 by 20 d.b. It has proved very satisfactory in every way.

13. In a few instances children were observed who preferred hearing aids which merely raised the line of their natural audiogram. By using audiograms made through the hearing aids to measure their performance it was possible to achieve fittings which produced more normal audiograms. That the revised audiograms actually did provide more normal hearing was supported by higher intelligibility scores.

14. Sharp peaks in the audiograms made through a hearing aid usually indicated that aid would be unpopular, although intelligibility scores were not always affected.

15. After a period of use children occasionally felt their hearing aids had lost power. Audiograms made through the hearing aid frequently revealed this to be true and likewise revealed the increased power after repair.

16. It seemed probable that better fittings were obtained by having a representative from each hearing aid company make the best selection he could for each child. A complete selection from each company was thus available rather than



Audiograms of T. C. made with and without a hearing aid considered unsatisfactory by the examiners but which the pupil considered acceptable. This hearing aid was worn by T. C. for seven months during which time regular acoustic training was given. The highest intelligibility score made during this period was 89 with most scores falling in the low 80's. With another hearing aid T. C. had a better audiogram and consistently made scores in the 90's.

only one or two selections such as sometimes are loaned to hearing aid clinics for trials. Each hearing aid was assembled by a person skilled in the handling of that particular earphone. It was definitely to the salesman's benefit to present his hearing aid in the best possible light—to use the latest and best model and to see that it was in working order and correctly adjusted.

It should be emphasized in conclusion that pure tone audiometric tests made through the hearing aid microphone have been utilized as only one method of evaluation. Although it is a short test and audiometers are rather widely available, we do not consider it *the* perfect method for choosing the best fitting earphone. However, the proper selection of a hearing aid for any individual is a many sided problem and no single approach should be expected to provide the perfect solution. Used in conjunction with other tests we have found this method useful. Its corroboration of other tests has reinforced our decisions and its wide divergence from other tests has caused our most careful reexamination. In all cases the final criterion has been the individual's ability to use his hearing to the satisfaction of himself and of those with whom he must communicate.

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Auditory Rehabilitation

AN old question has recently become one of renewed interest—and not interest alone, but vital importance as well. It is the question, "Can the ability to hear, once lost, ever be regained to any extent through re-education?"

The subject has been discussed at least since 1878, as the Volta Bureau Library will testify, and claims and counter claims have been hurled back and forth. Scientists have often branded the idea as smacking of quackery—which was not surprising in view of the fact that some of the experimenters stated that the exercises they recommended would *restore* the hearing. Hard of hearing laymen, resenting the implication that they could hear better if they would, have denounced or ignored the suggestion that lessons in hearing would help them.

Question: **Can an adult who has heard normally, and then lost most of his hearing, be taught to use it again? Can his hearing be re-educated to the extent that it actually improves?**

Dr. August Pohlman: **"I doubt very much whether we could increase the hearing of such individuals. I do believe, however, that their attention factor can be re-educated so that they can develop in the way of interpreting the sounds which come to them.**

Dr. Emil Amberg: **How can a destroyed endorgan be made more responsive? It is a physical impossibility, but it is possible to utilize what is heard, more extensively, by practice.**

Dr. G. de Parrel: **Auditory re-education does not work miracles; it cures no one; but it helps the deaf very much. Under the influence of oral exercises, the mental faculties of attention and interpretation become more supple and more rapid.**

Some of the arguments were summarized in the Volta Review of February, 1935, under the heading "Progress in Learning to Hear Again." The article quoted three scientists who believed that (in the words of one of them) "auditory re-education develops the remnants of hearing and permits the integral utilization of the reduced hearing capital which the deaf person has at his disposal." Several instances were also cited in which hearing, once normal, then impaired, then disused until useless, was restored by training to some degree of serviceability, and this statement was made: "Something *can* be done to give the very severely deafened, even some of those who do not now understand any speech even with the most powerful amplification available, the ability to make some use of the trace of hearing that remains to them."

In that same issue there appeared a letter from a young woman who had been persuaded to offer "A Recipe for Hearing" based on her own experience. She wrote with a light and humorous touch, and insisted that the letter be published without signature, but she told a true story of determined and persistent work that had brought her from apparently total deafness to the point where she could hear and enjoy radio programs through powerful amplifying earphones.

Today, eleven years later, the author of the "Recipe" is *Exhibit A* in the ranks of those who have achieved the incredible. Friends, who have not seen her since she could understand only by lip reading, gasp when she calls them up on the telephone and understands everything they say with no apparent effort. (She places the telephone receiver against her hearing aid.) Strangers, with whom she participates in a group conversation, are usually unaware of her hearing defect. She seems to have no handicap whatever.

It is with great pleasure that the Volta Review reveals the name of the "Recipe" maker and presents, on the following page, a sequel which brings her story up to date. To make the record complete, the "Recipe" itself is reprinted on page 28. The author, formerly of California, is now a member of the staff in the rehabilitation unit for deafened soldiers at the Army Medical Center, Washington, D.C. —J. B. T.

I Have Learned to Hear Again

By RUTH BARTLETT

SEVEN years—the words have a magical charm. Seven good years; seven lean years. Seven days in the week. Seventy times seven. Jacob labored seven years, and again another seven years, to win Rachel.

Fourteen years may seem a long time for perfecting a recipe, but when the concoction is hearing, the process may be called, like Jacob's, a labor of love—if one loves to hear and loves what may be heard.

Seven times two years ago I wrote, anonymously, "A Recipe for Hearing."* To that recipe, several new ingredients have been added; the telephone, phonograph records, a wearable hearing aid, the voices of friends. Taking for granted the patience of my friends and the inexhaustible supply of electrical power, I have utilized every means for bringing the sounds I wish to hear within the range of my aural perception.

Changing my mental attitude was an extremely difficult process. It was so easy to assume that I would never be able to hear without very great amplification such as had been used when I learned to hear the radio with the Phipps Unit. Measured, as hearing was measured in the early days, in terms of percentages, it seemed to me that an 89.6% loss in the right ear and 96.4% loss in the left was sufficient reason to think I could never use a hearing aid. No use trying—on the face of it it was impossible. That was the easy way, the lazy way, the "blame-it-on-everyone-but-myself way."

One of my students, who had discovered that ears were meant to hear with and not merely to hold up the hat or serve as hooks for spectacles, persuaded me to try ("just once, just try it one time, and I'll never ask you again") to hear with a wearable hearing aid. I tried, and a new ingredient entered the concoction which added more than a shot of Vitamin B_1. The samples were so delicious that I decided the word "impossible" must be removed.

From that time on my friends suffered chronic laryngitis from shouting at me from two feet away; from five; from ten; over telephones. My electric bill soared to astronomical heights as I used power to run the radio, power to run the phonograph; and the batteries left oozing and fusing in the trash can would have supplied half the walkie-talkies used in the late unpleasantness.

I worked at it. Yes. And I worked everyone else unfortunate enough to come within my hearing range. Phonograph records sputtered and acquired the sound of a flat wheel on a street car. Radio tubes staticked (Is that a word? If not, it should be.) and faded out. Five hearing aids gave up the ghost. And I suffered all the tortures of motherhood in my labors to bring forth hearing; nausea, dizziness, daily headaches, and a perpetual feeling of imbalance.

No doubt I went at it too enthusiastically. No doubt I worked at it too many hours each day. But what had I to lose? A mere 3.6% Left and 10.4% Right. Bagatelles! And every sound gained a priceless jewel which had been lost and mourned for more than 20 years. I was rich. Rich!

The very personalities of friends whose voices I had never heard changed for me. Inflection can change the whole feeling of one's understanding. Tone can raise one's hopes. Pronunciation can amuse or instruct. Can it be possible that the younger generation speaks a different language? Indeed it does. And that had been just one of the small unknowns in my abyss of ignorance regarding modern sounds.

Can I hear the radio without my special powerful headset? Yes. Can I hear a phonograph without a special headset? Yes. Can I hear over the telephone without an amplifier? Yes. Can I hear in the

*See page 28.

movies without a headset? Yes. Can I hear concerts and lectures? Yes. Can I hear anyone who speaks above a whisper? Yes. Can I hear some whispers? Yes. But can I hear any more without a hearing aid than I could twenty years ago? *No!* Is my hearing improved? *No!*

What Has Happened?

Then what has been accomplished? Doctors and others of the Old School will say that nothing has been accomplished because there is no increase in hearing. They fail to recognize the fact that hearing is not so terribly important if one does not understand what is heard.

Whether or not the actual measurement of hearing varies before and after treatment does not seem to me the important consideration—though I am inclined to believe, from many cases observed at Hoff Army Hospital, that improvement may be measured. The important matter is that understanding is improved. A baby does not know the meaning of the sounds he hears; he does not understand them, though he hears every sound. A hearing aid will bring sounds within the range of one's aural perception, but, without interpretation, without understanding of the sounds, they may be classified as "noise."

One acquires that understanding and interpretation by listening, listening, and trying to turn those sounds into words and music. This process is called, sometimes, Auricular Training, or Auditory Training, or Acoustic Training. The Army chose the word "Auricular" as best describing the teaching.

And again the Old School arises in its might and bigotry to say that Auricular Training is "nothing but *listening;* it does not improve the hearing one iota." Nevertheless, the Army used teachers of Auricular Training in each of its three hospitals where the hard of hearing were rehabilitated. The Army believes in exercising the hearing, just as it believes in exercising a leg or arm that has been broken and is healing. And many excellent results were achieved which might be described at great length. But we are not talking about the Army; we are talking about *me*—and you and you and you.

I have told you what I did; now, how about you?

Do you want to hear more than you want anything else in the world?

Are you willing to sacrifice time, money, energy?

Are you willing to work months or even years before you note any appreciable results?

Are you dissatisfied with less than maximum efficiency?

If not—drop out; you cannot learn to hear.

Fifteen minutes once or twice a year means exactly nothing. Fifteen hours every day in the year may bring results after months and months or even two or three years.

Constant listening, constant practice, constant observation, constant alertness; not to mention constant headaches and discouragement and despair, are the price of success.

The best hearing aid in the world can bring you no more than sound; how you interpret sound depends upon you.

Here Are My "Musts"

Perhaps no school of Auricular Training will postulate just these rules but they have all been musts in my recipe:

1. Make all the effort yourself; don't expect or allow the speaker to make it easy for you.

2. Wear your aid all day, every day, and *keep it turned on.* After all, the horrible noises are no more nerve-racking for us than for those who *have* to hear them. We need to know what people are hearing. We need to react normally to noises and not jump out of our skins when an airplane suddenly zooms within our hearing range. We need to be able to identify that plane by the sound of its motor if our small nephew expects it of us.

3. Don't wear old batteries. It is hard on the instrument, hard on our nerves to make the extra effort to hear, and hard on the voices of our friends.

(*Continued on page* 58)

What Is New in the Hearing Aid Field?

By JOSEPHINE B. TIMBERLAKE

SEVERAL months ago I sent a letter to representatives of the hearing aid and battery companies, asking the question found in the title of this article. I told them I believed that every company had something new—an improvement in clarity, noise tolerance, size, weight, appearance, convenience, or something else that contributes to efficiency, comfort, or economy—and I asked to have photographs whenever it was possible to show an improvement in that form.

A fine response makes it possible to tell our readers a story as recent as the release of new models permits. It will be out of date, no doubt, in a few months, but nobody will mind that, as long as the improvements continue.

The Greatest Advance

Users ask many questions—that is the main reason for this series of articles†—but nobody is asking, this year, wherein lies the greatest advance in the hearing aid field. The answer is apparent on every hand: *batteries!* The great reduction in the size and weight of batteries has made it possible so to modify the comfort and convenience of hearing aids that the number of users is increasing at a rate that is visible to everybody who walks along a city street. One dealer told me that he had sold, in the same length of time, four times as many of the new one-piece instruments as he had of the previous excellent hearing aid he had been carrying—an instrument of the two-piece type, with separate battery pack.

The accompanying illustration, showing the two little "B" batteries with a ruler, tells the story very graphically. The two batteries illustrated are of 22½ and 15 volts respectively. Not many hearing aids use voltage as low as 15, but 22½ is a common size. The 30 volt size, commoner still, differs from the 22½ in the picture only by being half an inch taller. They are in striking contrast with the 45 volt battery I have been wearing, and which is

THE GREATEST ADVANCE IS IN THE WONDERFUL REDUCTION IN THE SIZE OF BATTERIES.

typical of those used before and during the war. It measures 4 x 2¾ x 1 inches, and it weighs almost 9 ounces on my little postal scale. With the "A" battery attached, the total weight is 13 ounces for the battery pack alone. As I took it off the scale, my eye fell on the one-pack *Telex* which reached me a few days ago and which I have been testing, and I weighed that, too. The total weight of the entire instrument, including microphone, amplifier, receiver and both batteries, is *just eight ounces.* And this despite the fact that its maker wrote: "We have made no attempt to reduce the size to that of some one-piece instruments on the market."

(Speaking of the "newness" of one-pack aids, Mr. Myers of *Radioear* has unearthed some interesting patents which show that work was being done on this type of instrument as early as 1903. In that year,

†April 1934, April, May and August 1936, September 1937, September 1938, September 1939, November 1940, September and October 1942, November 1945.

and again in 1905 and 1908, patents were issued to inventors who were striving to make compact hearing aids. One of them actually had no cord at all—I wonder if that means that the whole instrument was held against the ear! One thing I know: I am glad I do not have to listen to it. I remember trying some of the early instruments. They did not sound like the good ones we have today!)

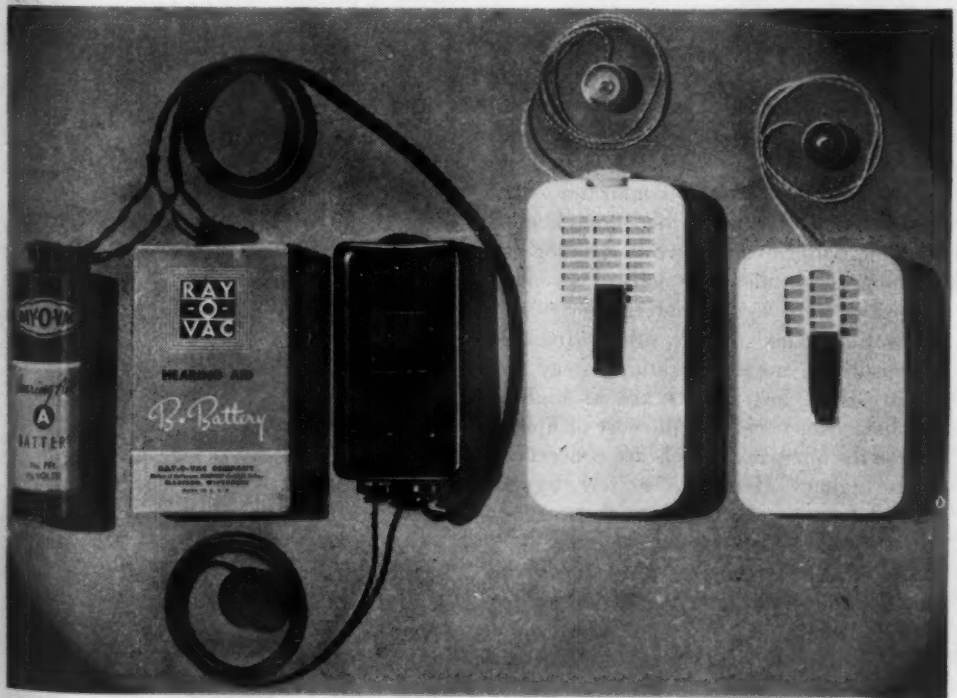
LOOK AT THE HARNESS NEEDED FOR THESE BALTIMORE PUBLIC SCHOOL CHILDREN; THEN SEE THE MODEL ON THE RIGHT BELOW!

The *Beltone* Company has sent an excellent photograph showing this reduction in size and increase of convenience, and the *Vacolite* and *Gem* pictures also emphasize the one-pack idea, though both of these instruments may be separated and worn in two packages if the user prefers. Just contrast these with the elaborate harness needed to equip the two Baltimore youngsters photographed only a year ago! The children are happy and smiling, but it will be good to see their burdens lightened, won't it?

But—"There Is Always a But"

How about the expense? Ah! that is quite another story.

When I wrote my last article on this



THIS ILLUSTRATION, BY COURTESY OF *BELTONE*, SHOWS, LEFT TO RIGHT, THE OLDER MODEL, WITH LARGE SEPARATE BATTERIES, ITS FIRST ONE-PACK SUCCESSOR, AND THE PRESENT MODEL.

THE *VACOLITE* ILLUSTRATES THE ONE-PACK IDEA . . .

subject, there was a distinct trend in the direction of lower prices. It was (and still is) possible to get for only $50 a hearing aid from the list of those accepted by the Council on Physical Medicine of the American Medical Association. The introduction of this instrument, the *Zenith,* had resulted in a large increase in the number of users, and had been influential in persuading many companies to place lower-priced models on the market. All of these, however, were of the duo-pack variety, using batteries and cords and connections that now seem very large and very complicated.

As the batteries have grown smaller and the mono-pack idea has gained strength, the prices have again undergone revision —this time, alas! in the other direction. It is probably no exaggeration to say that the prices of instruments are as high as they have ever been, and the cost of upkeep (where the one-pack models are concerned) much higher. Here are a few figures, gleaned from my own tests with two good instruments from the same factory.

The two-pack model uses a typical wartime 45 volt "B" battery and the complementary 1½ volt "A" battery of about the same thickness. One costs $1.75 and lasts from 500 to 600 hours. The other costs 10 cents, and lasts from 90 to 100 hours. (The battery drain of this particular instrument is lower than that of most others I have tried.)

The one-pack instrument uses a 30 volt "B" battery which costs $1.10 and a 1½ volt "A" which costs 20 cents. They last, respectively, about 125 hours and 35 hours. In other words, the cost for operating the smaller instrument is more than twice as great. To add to the problem, the shelf life of the smaller batteries is shorter, lessening the chance of obtaining them from the dealer at full strength.

It is clear that, where expense is concerned, the evidence is heavily in favor of the older models. The quality of sound they deliver is certainly as good, too—some people say it is better. It seems evident that many of them will continue to be in use for years to come. Users who have already learned to wear them with little or no inconvenience will not object to the surplus weight and cordage, and will certainly appreciate the economy.

At least two well known manufacturers have continued to emphasize improvements on their present models, rather than rush into the one-pack field. They are *Western Electric* and *Radioear*. The instrument I have on as I write these words is a brand new Western Electric "64." It is a beautiful model—flesh-colored, with a flesh-colored receiver cord, and quite small as

. . . AND SO DOES THE *GEM*

compared with its predecessors. The size and weight of its battery pack have been reduced more than one half, despite the fact that the batteries are housed in a strong little case, which guards against loose-connection noise and leakage. The instrument has very good tone quality indeed, and a control which minimizes the annoyance of outside noises.

The friend with whom I am going to lunch is rejoicing in a new *Radioear*. Until recently, I had not seen her for several years, during which period she began for the first time to wear a hearing aid. I had never thought of her, before, as seeming handicapped, but now I realize how much more freely and happily she participates in conversations. Radioear, by the way, has recently announced a new crystal microphone that is not damaged by high temperatures, and a smaller, much more powerful bone conduction receiver. The company is also hinting at important developments to come in the near future.*

Sonotone has recently come out with a "convertible" instrument—used in either one pack or two. *Acousticon* has been experimenting with a very short battery cord. *Otarion* has a new "singlepack." All have profited very much by the introduction of smaller, lighter batteries, and by the fact that it is now possible to secure more power with lower voltages. Zenith has not made any recent announcements, but rumors about something just over the horizon are coming from many different directions.

Service

Of course one frequent "headache," for users, manufacturers, and dealers, is service. All companies are constantly striving to improve it, and they have been very much helped by the simplification of parts. For example, the little tubes of the "plug-in" type, now offered by *Raytheon* and other makers, often save the necessity of a trip to the factory. Rapid service in the dealer's office is a feature of *Paravox*, made possible by a new chassis design. The entire amplifier is contained in a plastic case so strong that it is said to have withstood more than 2000 pounds of pressure. This is easily and quickly removed by the dealer, and replaced if necessary.

There are some splendid local representatives in nearly all companies. Others, even those who make some of the very best instruments, have been most unfortunate in their choice of dealers. In addition to some men and women of the finest type, there are also the crude, the unscrupulous, and the well meaning but woefully ignorant. It is to be hoped that much more attention will be given to this all-important factor, as rapidly as help becomes available. One hears the comment all too often: "I have worn the ———— for years, and I like it, but I will never have another as long as I live if I have to buy it from ————."

A service which the user appreciates is that offered by the Burgess Battery Company, which has been striving to make hearing aid batteries available in such places as drug, radio, and hardware stores. Only last summer, when I was up in the mountains and far from any hearing aid center, I would have been in a most uncomfortable position if I had not been able to get some batteries from a small hardware store.

Public Interest

It is very encouraging to note the constantly increasing interest in hearing aids among laymen and in the educational field. Only a few years ago one almost never saw an informed comment on impaired hearing in any educational journal. Now it is not unusual to see helpful, well written articles which show appreciation of the difficulties produced by hearing losses of different types and degrees. There are even reports of hearing clinics, and discussions of the services they should render. Public education is being advanced by such

*Just as this copy goes to press there comes a letter from Mr. E. J. Myers of Radioear, together with an announcement of his new "Permo-Magnetic" model—"the only hearing aid without a crystal." Mr. Myers has such faith in his new product that he says: "Our previous crystal-operated wearable hearing aids will be discontinued and our entire production will be concentrated on the manufacture of the Permo-Magnetic Radioear." Since it was largely through the use of crystals that hearing aid efficiency reached a new high about eight years ago, this decision seems revolutionary indeed, and makes one eager to see the new product.

THE SONOTONE DRYER

columnists as Edyth Thomas Wallace, well known for her "This—Not This" points for parents in the daily papers. "See, Jim's hearing aid is much like the microphone at a radio station," she had the wise mother saying to the gang in a recent cartoon. "It gathers up sound and carries it to his ear." And she contrasted this attitude with that of the unwise mother who felt "so sorry" for her little boy, told him it was a shame he had to wear a hearing aid, and threatened to report the boys who teased him to the teacher.

The radio is recognizing the hard of hearing, too. One company has introduced a standard model that carries a special attachment for headphones that can be amplified independently without making the loudspeaker too loud for others. There is another radio device, too—this one made by Telex. It is a light, comfortable, "fork" receiver like the one on the doctor's stethoscope, with a small amplifier built in. One of my friends uses it every night—sometimes even in the middle of the night—without disturbing anyone.

Accessories

It is good to know that battery testers are back again. They repay their cost many times, for keeping batteries up to their proper strength is one of the most important matters in hearing aid use.

Are you one of the people who want their hearing aids to be very, very inconspicuous? If you are, and if you don't mind sacrificing a few decibels, you may want a *Telemold*. It is a sort of extension receiver-tip, a flexible tube attached at one end to your ear-tip and at the other to your receiver, thus permitting the latter to be worn under your collar. If your hearing is very badly impaired, however, and you need all the amplification possible, you had better hesitate. You will hear better with the ear tip attached directly to the receiver.

Most crystals used in microphones and in crystal receivers are sensitive to moisture as well as to heat. Sonotone has a Silica Gel air dryer kit that is designed to offset this difficulty in humid localities. The hearing aid, cord and receiver, together with the dryer, are inserted in a pouch, wrapped as directed and laid away. In a few hours all parts of the instrument are said to be thoroughly dry.

It's a Good World

Altogether, if one has to be hard of hearing, this is undoubtedly the best world to date in which to suffer that misfortune. The atom bomb may threaten, politicians may wrangle, international delegates may storm and disagree, but at least we can hear what is said about all the upheaval. And we can hear an infinite number of things more pleasant!

By courtesy of Science Service

THE FORK-LIKE RADIO RECEIVER

Learn To Listen

By MILDRED KENNEDY

AMPLIFIED sound is in evidence everywhere. Radio and phonograph recordings are always with us. The hard of hearing may take advantage of these mediums and learn how to listen. The average individual thinks little about his learning processes. He seldom knows how to practice efficiently so universal an activity as listening. Too little attention has been given the hard of hearing to help them along this line, and to give them confidence that they are listening in the most helpful way to overcome their difficulties. The subject of "better hearing" demands attention. Auditory training is a recognized profession that takes its place with educational methods.

For the best results the deafened should study with a teacher who has a musical background and graded, correctly notated teaching materials; one who is well versed in methods of procedure and who can, therefore, show the student *how* to work. There are few in the field. With or without a teacher's help, there are a few necessary fundamentals to success:

a. All practice must proceed so that the student understands what is expected of him: so that *he knows* what he is trying to do.

b. He must have something definite to listen to, or for.

c. He must have some way to verify how correctly he hears what he listens to.

d. He must have an opportunity, through repetition, to study materials that are difficult for him to hear, or that interest him.

The writer believes that all who have hearing difficulties will be interested in the following suggestions and will profit from giving them a try-out. The list should be thought about often and re-read occasionally. The practice should be conscientious and frequent, and the progress checked.

1. In planning the day's program set aside a definite practice period and do not let anything prevent you from sticking to it.

2. Find a practice place where you will not be interrupted or bothered, or feel that you are annoying others.

3. Two ten-minute periods will bring better results at first than one twenty-minute period. Concentration may not be easy.

4. Plan definitely what you are going to work for. If listening to music, try to hear the rhythm clearly, or note the timbre; try to pick out the melody of one particular orchestral instrument above the accompaniment. Try to distinguish the meter, to tell which family of instruments predominates—strings, brasses, woodwinds, percussions. In songs, listen to the melody, the voice, the accompaniment, or the words of the song, trying to understand. In speech, concentrate on the quality of the voice, whether male or female, its range, inflection, the enunciation, diction. Try to hear and to understand what is said, to detect any unusual pronunciation, foreign or colloquial. Try to make yourself so keen that you can detect any unusual effects.

5. Especially in beginning this study, try to make yourself as keen mentally as possible. The unpracticed, who have not yet learned *how* to listen, must watch themselves and guard against lapses in attention and concentration.

6. Try always to work at your fullest power of concentration. *Do not let your mind wander.* If not able to concentrate for the ten minute period, stop work for a little while and try again after a brief rest.

7. Devote a part of every practice period to listening *thoughtfully* to tone quality. Listen to sustained tones in a singer's voice and try to match these.

8. Concentrate upon listening to one thing at a time. The human mind can only do one thing at a time. It may *learn* to do several things simultaneously after the process of doing each one has become an automatic function. This point is reached only through frequent repetition and practice.

(*Continued on page* 52)

The Parents Talk It Over

A Charming Picture of Happy Home Life

Ann, twenty-two months old, fits right into the picture, and not in the background.

MAY I introduce the P. family? There are six of us located on forty acres of cut-over pine lands in southwest Louisiana. First there is the Daddy (Carroll), age thirty-three, five feet 7 inches in height, employed by the State Fish and Game Division in field research as a biologist studying the behavior and survival of released pen-raised bob-white quail. He operates this small farm as a side line, raising hay crops and beef cattle; all the rest of his spare time is spent with his fishing rod or his guns or his Boy Scouts.

Then there is the Mama (Gwen), age twenty-seven, five feet 2 and a half inches in height, employed by the family as chief cook - formula - mixer - stenographer - farmhand. Her hobbies are directing a chorus of high school girls that sing in three-part harmony, a Sunday School class of the same age, singing soprano every time she gets a chance, and doing some very amateurish painting. She also reads, reads, reads; at the present she prefers autobiography.

Then there is Tom, five and a half, platinum blond. At this time he is snaggly-toothed, skinny, and all ears. A child on whom our psychology books panned out—you can explain things to Tom. And then Sue, three and a half, lots of dark blonde hair that looks frowsy unless it's braided. Sue is quite determined, and the applied psychology of the hand is all she will respect. She is developing the mother instinct and takes care of her younger sisters on a full-time basis. And then our little Ann, twenty-two months now. Light brown hair that twists up on the ends, a dimple in the center of her nose; our little hard-of-hearing angel. Then last (for the present time) Baby Jane, 5 months, a sweet little drooling, cooing doll.

Also seven bird dogs, one cat, twenty chickens, two horses, thirty head of cattle. We also have some goats and sheep, but they jumped the fence and never come home except when the melons get ripe and then they jump back over the fence and wreak their yearly havoc and are gone again. I guess we are the happiest family the good Lord ever let live.

About our Ann, she was just like all the rest of the babies, except that she was a very sound sleeper, nothing ever seemed to disturb her, never sick, never even had a fever until this spring. After Christmas last year Ann was at the age when the others had started obeying our spoken commands. One day we noticed that unless she was looking at us when we spoke, she never noticed our words. I laughed off my husband's first suggestion that she didn't hear, and then I asked his mother and she told me that she had already discovered it. Our family doctor suggested an ear-eye-nose specialist at nearby Alexandria and he confirmed our fears. She didn't respond to any of the tests that he could give to our wiggly little girl.

Those were hard and despondent days as you all probably have endured, too. The only hard of hearing person in either of our families was Mother. She didn't hear well enough to go to school until her tonsils were removed, but that corrected her disorder. Ann's ear parts are in perfect order and all the doctors we have taken her to have diagnosed her trouble as being a disorder of the auditory nerve.

At first she didn't respond to any sound, but lately she has heard the thunder, a train whistle nearby, a cow horn blown in her ear, the dog whistle, the firing of the shot gun, music and voices heard through the earphones. When we first got the earphones attached to our combination radio-

phonograph she would listen for as long as twenty minutes, but once she put them on when her clothes were wet and they shocked her. Now she pushes them off as soon as she puts them on. We are having the other children wear them and hope that she will soon try to follow their example. She likes to imitate them.

One specialist in New Orleans gave us the address of the John Tracy Clinic and Ann is now in her third month of their wonderful correspondence course. We are very grateful for the hope this offers us. Her understanding is increasing noticeably with each lesson. In this rural community we were unable to get the suggested toy materials for some of the parts in the second lesson, but we have ordered them and she will soon be using them.

Her attention is hard to hold very long. I tried to keep her at her lessons too long at first and she got restless, but now we make it much shorter and she likes it a lot better. We've been concentrating on *shoe* and *spoon* and she hasn't learned either yet —but on her own hook she has learned *yes* and *no* and *all right* and *that's hot.* This last she forms with her own lips every time the toast or her cereal is too warm. She doesn't get much sound into it yet, but just yesterday she put a "t" sound on the end of it. (Not much to brag about, but every little thing means so much to us.)

My oldest brother visited us lately and after observing her a few days he remarked, "I never realized how useless our language was until I saw Ann. Why she understands everything I tell her." And she does. We all talk, talk, talk to Ann and as long as it is in the present she follows us very well.

She is a great little helper. She helps her Daddy prepare the dog food, watches the toast for her Mother, plays house with Sister Sue, and looks after the baby, picks up the toys she throws out of her play pen, and passes out the crackers to the other children in Sunday School.

She has been walking for about six months, but still staggers backward occasionally. However, she is very proficient at climbing and balancing. She has never fallen off anything and takes the trees, swings, fence rails, and furniture in her stride. Since she heard through the earphones she has started dancing and jumping in little games of her own invention. When she doesn't want to mind she will look the other way, but she usually obeys us very well. She has a cousin nearby who is the same age and he doesn't behave or mind as well as Ann.

Have I said too much or the right thing? It is good to have friends who understand as you all must.

MRS. P., Louisiana.

Letting the Deaf Child Share the Limelight

Janet is now three years old. A wise mother and father have worked out a philosophy which includes developing a balance between the little deaf girl and her baby sister with normal hearing.

Speaking of our other girl, Laurie, there is a situation which could develop into a problem unless we watch ourselves closely. Little Laurie can hear, and what a joy she is to us! She seems just about perfect as far as we are concerned. She is a very good baby, and so strong. She was just nine months old the other day and already she stands alone and is ready for her first step any time now. Well, we could develop the attitude easily that Janet is all work for us and Laurie is our fun. So we are trying to work out a philosophy, accept it and then stick by it. We admit to ourselves that Janet will take much more patience, effort and time than Laurie; but her accomplishment will be just as important, if not more so. We stop every so often to talk over Janet, and soon we are marveling that she can do so much in spite of a handicap.

So now when company comes and fusses over Laurie and looks at Janet in an embarrassed or pitying way, we bring out Janet's jigsaw puzzles, which she loves, and set her to work. She enjoys her share of the limelight. She has twelve jigsaw puzzles, each with about twelve pieces in it,

and she does each one perfectly. When she is performing she will put a piece in the puzzle and clap her hands and look around till everyone else is clapping, and then find another piece. This usually warms our company to her, and they feel more at ease and do not regard her as being so different.

Mrs. B. used the same technique on her Danny as we are attempting with Janet. We are having her do little things for her sister, and it certainly gives her a feeling of belonging. I use that to my own advantage, too. Janet loves to carry Laurie's diapers to the diaper pail for me, and that saves steps for the mother. She holds the diaper gingerly between two fingers, wrinkles her nose in disgust as if to say, "*I* don't wet *my* pants," and off she goes. She is gentle with Laurie, usually. She wants to do a little too much for her at times.

I'll have to tell you about the six-weeks course I attended with Janet this summer while in Portland. Mrs. J. and I both went and it was nice meeting her. Little Darryl is a darling. He has rather sandy colored hair, a sprinkling of freckles across his nose, and a most angelic look. I wish you could see the pictures they took at the Clinic. He was a wonderful model. He's a bright little youngster, too. It seems to me that Darryl and Janet had an advantage over some of the other children because of the head start they had from the John Tracy Clinic correspondence course. They went about matching the colored cards to the chart as if it were old stuff to them. And it was.

While in school we mothers traded children and then took them through the routine which Mrs. Maxon, our head teacher, had planned for the day. That would include sense training, such as the matching charts; speech work—Janet accomplished her m, f, and a(r)—; tongue gymnastics; handwork (which included bead stringing, modeling with clay, etc.); and finally some acoustic work. Janet at first wouldn't go near the earphones. We have figured out that Janet must have been frightened by the earphones at the Tracy Clinic. I must hasten to say that was more my fault than theirs. I told the lady who was to test Janet that we felt she had no hearing at all. And going on that assumption she turned the volume too loud for Janet, and evidently it was very painful to her. She cried and would have no more of them. So she remembered when she started school this summer. But we took her in the acoustic room each day and had her watch the other children put on the headphones, and by the fourth week she was willing to put them on, too. It was then that she imitated the *ah* and *oo* sounds, and what a thrill! We must work on her hearing more, but we have to be very careful not to frighten her again.

One of the interesting features of the school was having a couple of mothers of older deaf children come to talk to us, and bring their children with them. When they had their children talk, all of us novice mothers sat forward with our mouths open, almost not believing that the youngster could actually talk sentences. It was most encouraging and good psychology for us and we would go at the next day's lesson with high hopes.

One of the mothers who talked to us had a boy fourteen years old or so. He had a friend who was also deaf, and whenever they go together for an evening ride with one of the families they were each given a flashlight and could talk to each other all they wanted in the back seat.

Mrs. Alice Maxon conducted the summer school, and she is wonderful. She is principal at the Hosford School for the Deaf, a public day school here in Portland. She understands deaf children, as she grew up with them, her father being superintendent at a state deaf school when she was small.

Mrs. Maxon had a suggestion for us that proves helpful to me. She said to put an ankle bracelet on your child with a little bell attached, like the ones they put on Christmas packages. It is a wonderful way to keep track of your youngster. When I want Janet I don't have to run all around our yard to find her. I stop and listen

(*Continued on page* 56)

Molly Mather's Mail Box

EVERY year for the past five years—since this mail box was started, in fact—I have begun the new year with the pious hope that it would be better than the last one. Perhaps it would be more sensible to stop thinking about last year and look forward, not back, as the Y.M.C.A. young men tell us, resolving to make the New Year into something enjoyable as well as endurable. It was around 1938, I think, that a friend of mine said he "dreaded 1938," and I think he is probably dreading 1947 as acutely, for certainly things haven't improved much in the past nine years. Just as we think our troubles could not possibly be any worse, they get worse. And yet, like the characters in all the comic strips, we survive one catacylsm after another, and the story still goes on. Terry and Burma have been in every imaginable catastrophe, and have come up smiling. Joe Palooka remains world champion in spite of every challenge, and though he never manages to marry his beloved Anne, she remains faithful to him, as Kitty remains perennially faithful to Mickey Finn. And maybe there is a moral lesson in the enduring steadfastness of all these favorites.

Anyhow, here's to 1947, and may all of us get at least a few of our desires!

We had no Mail Box in the November VOLTA REVIEW, so I didn't get a chance to tell what I was thankful for; and this might be as good a time as any, for New Year's isn't a bad opportunity for counting one's blessings. The two things I have been most thankful for, year after year, were my job and my friends, and I've never been quite sure in which order to name them, though it seems to come natural to name the job first. I suppose that if I did not have a job, my friends would see me through, but I have always been grateful that I did not have to put them to the test. And it has been good, through the years, to have interesting work to do that demanded both brains and enthusiasm as well as a certain amount of trained ability. In many years of working for my bread and board I have never had a dull job.

Moreover, I have never found extreme deafness a great handicap in the jobs I have held. Which reminds me that a letter in the October Mail Box, from a Missouri librarian, has rather stirred things up. The writer made the statement that, "As far as cataloging and classification are concerned, hearing is absolutely non-essential," and a lady librarian whose attention was called to the letter wrote an indignant rejoinder, condemning the statement and announcing flatly, "I cannot think of any work in which hearing is absolutely non-essential."

I think she wrote rather hastily, and was inclined to stick her neck out, for I can think of many, many kinds of work in which hearing is absolutely non-essential. My own various jobs have been performed, I believe, with reasonable satisfaction to my employers, and all have been conducted without benefit of hearing. I think I could safely say that, in the types of work in which I have engaged, hearing is non-essential. This does not mean to imply that communication with one's fellow workers is non-essential. I have always worked in offices where the staff members were in close touch with one another and often consulted one another, and here my lip reading ability stood me in good stead. It has been only on very rare occasions that instructions had to be written for me, as I have always found it easy to read the lips of persons with whom I am in constant association. But perhaps this lady has never known any lip readers.

In one of the most interesting articles ever published in the VOLTA REVIEW, the life story of Professor Israelson, of the Utah State Agricultural College, Professor Israelson himself summed up the difficulties that sudden total deafness had created in his life; and he stated that his deafness caused him less trouble on the job than anywhere else, whereas he felt most frustrated in social contacts. I think most of us will agree with him here.

The Problem of Dining Out

The "every day problems of the hard of hearing" continue to be the favorite topic of my correspondents. Here is a letter from one of our most esteemed friends.

Dear Molly Mather:

The letter of DG in your column in the September Volta Review hit me in a vulnerable spot. I, too, wonder why the deaf do not write more about their commonplace every day experiences, so perennial with us, so beyond the conception of a hearing person; and I have said much and written much about the pitfalls and perils of social intercourse, particularly dining. You hit on one big obstacle in your comment. How often my wife tells me, "That waitress could not hear a word you said," when I supposed I had spoken loudly and clearly. We never know how much noise we have to compete with. I have struggled to eat while a cordial hostess has tried to tell me a story, and then been faced with the painful alternatives of letting the dish be taken away uneaten, or keeping the table waiting while I finish it alone. I have lived through the whole round for years, and have now given up dining out; and when I must eat publicly I go to my club, where the orders are all written, and the waiters know me.

I am moved to tell you of an incident which fortunately, told in this wise, will not interfere with your paring potatoes—an incident during the course of which, instead of merely coping with social problems, I stuck my head out to encourage them. Going to town this summer, I dropped off the train at Grand Central, and decided it would be easier to walk up to my apartment—of course empty in summer—and get something to eat on the way. I stopped in at the Savarin on Lexington Avenue, and found it, of course, crowded, as is every place nowadays. The usherette asked me if I was willing to eat with someone else, a query I was lucky enough to catch on the fly, and I replied I was, if the other party did not object. She took me to a small table where one man was eating, and asked him the customary permission. He replied with a friendly smile at me and a hospitable wave of his hand at the seat opposite. I gave the waitress my order, and then my table mate addressed a remark to me which I could tell at a glance was some conventional friendly opener. This situation has happened to me often, especially in railroad diners, and I have usually ducked it. I replied,

"I'm sorry, but I am very deaf. I appreciate your trying to be friendly, and wish I could cooperate."

He smiled understandingly, and seemed to be such a pleasant chap, that I fished a pad and pencil from my pocket and offered them, explaining that if he did not mind writing while we waited for our dinners, it was possible to communicate with me if he cared to. Apparently he did, for he picked up the pad with a gratifying eagerness, and wrote something to the effect that it was difficult to find a place to eat these days, that he hadn't been in the Savarin for a long time, but could not get in anywhere else.

I replied that I had not either, that I usually went to my club but was tired today and in a hurry, etc. He wrote back,

"May I ask what is your club?"

"The University."

"I have been a member many years. We are fellow members, so have much in common."

We had a quite interesting conversation. He gave me his name, one with a strong Spanish flavor—his father was Spanish, his mother Irish—and I enjoyed it all, and wondered why I did not have the courage to try it oftener.

As I said, I have written much about my social defeats and triumphs, and I have set down more of them in my book, "And Hearing Not," to be published next month by Scribner's. It has a good deal of "Louder, Please" in it, but is extended to considerably more than that work, 400 pages, about 135,000 words. In addition to deafness, I have told something about advertising work as I have found it, and also my experience as a writer.

Your department in the Volta Review seems brighter and more readable than ever. Each time I read it, I write you a mental letter, you stimulate so many thoughts and experiences. We deaf have so much in common that no hearing person can sympathize with, understand, or even believe. I wish more of us were articulate, for the written word is the best expression for the partially deaf. I have an instrument and lip reading, and use both to some extent, but I never really mastered lip reading, and my ears are practically out of reach of even the best devices.

Returning to your column, I went through the period when the problem of finding a spot to attach an instrument and secrete a battery was foremost, as with Archimedes, who could move the world if he could find a place to rest the fulcrum. Golf, for instance, is actually a social game, but even golf is too strenuous for a hearing instrument. I, too, am fond of sun-bathing, and in those far off days when I could really hear by electricity, there were no wearable kinds of instruments, so I carried my black box along and set it on the sand, taking off my ear when I plunged into the waves. But, now, with nothing left to hear with, I devote myself to sun only, and with special reading glasses designed to stop Gamma or Beta rays—or whatever they are that hurt the eye—I read and tan, the world forgetting, by the world forgot. And I am now wearing as complete a suit of tan as one could wish.

With continued applause for Molly, I am, yours cordially,

EARNEST ELMO CALKINS.

I know all Mail Boxers will be looking forward eagerly to "And Hearing Not." I shall never forget the evening I first met "Louder, Please," in the reading room at the top of the 42d Street Library in New York. I had discovered the author in the pages of the *Atlantic Monthly*, so I knew what to expect, but I was enthralled, nevertheless, by the sheer charm of this writer's treatment of his infirmity. Here, surely, was one who knew how to be articulate about deafness, and to set forth problems and difficulties, while at the same time never failing to be witty and gay.

There have been some charming deaf writers. Grace Ellery Channing earned our undying gratitude with her essay on "The Deaf in Art and the Art of Being Deaf," and E. S. Martin gave us some lovely editorials on the subject; but very few of us have managed to be charming through a whole book. So we shall all be waiting for "And Hearing Not."

To revert to another of our "common problems" on which Mr. Calkins touches, one of my correspondents wishes to take up again the matter of wearing a hearing aid and a bathing suit simultaneously. Perhaps this isn't the best time to be talking about swimming, except for those of us who live in Florida, but it will be as well to have the suggestions handy for next summer.

Hearing Aids and Bathing Suits

How do I handle the shorts and bathing suit proposition? Why wear separate bra and shorts? If you must have an open midriff, fix a fancy pattern that lets one still have a bra to which a phone may be attached. If your batteries are in a separate case from the transmitter, have a special pocket through which the cord may be run, and another pocket for batteries. It is surprising what hard wear even vacuum tubes can stand.

Around water, the problem is more serious, of course. Personally, I keep an old carbon aid to use at the beach or around the pool. Both the amplifier and the transmitter have had their baths. After I had dropped the amplifier into ten feet of water, our local agent dried it out for me, and it seemed to have suffered no ill effects. When I wear a bathing suit, I carry my phone either in a case or in the pocket of my beach coat.

I agree with A. P. about the looks, but the disagreeable part to me is not the ear-

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Day Kindergarten in South Australia

DEAF PRE-SCHOOL CHILDREN, AT CLAY MODELING AND BUBBLE BLOWING, WITH A MOTHER HELPER, NORTH ADELAIDE, SOUTH AUSTRALIA

IN NORTH ADELAIDE, South Australia, a Day Kindergarten was started last year in connection with the Oral Pre-School Group Movement. Forty parents of young deaf children formed themselves into this organization with the idea of providing pre-school education for the children, who are admitted as young as 2½ years. The only alternative in their State is a government subsidized boarding institution where children are not admitted until they are five years old. All the parents are anxious for their children to learn to speak and at the same time to have the benefit of home environment while very young. This school was the result. It was opened officially on May 28th with eighteen children.

At the present time the parents are handicapped by lack of a complete staff. They have a trained kindergarten teacher as director, another assistant, and a speech therapist, but no trained teacher of the deaf is available.

American Teacher Wanted

The primary desire of all the parents concerned is to obtain a trained teacher of the deaf, preferably from the United States, and as soon as possible. If any readers are interested in this possibility, they may write to Mrs. Elizabeth L. Forwood, Day Kindergarten, 108 Kermode Street, North Adelaide, South Australia.

The parents and staff are striving for three things: to give the children normal kindergarten training, to encourage them to listen and concentrate by means of earphones attached to a wireless, and to encourage speech by means of language training given by a speech therapist who takes each child individually for six or eight minutes daily.

Groups of three or four children are taken daily to participate in outdoor play at a hearing children's kindergarten only a few yards away. It is felt that this helps the child to adjust himself generally.

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An Acoustic Training Program*

For Severely Deaf Children

By GRACE HARRIS

The Use of Amplification

ELECTRICALLY amplified sound through hearing aids can be a great influence for good in the education of the deaf child, provided the apparatus is used properly and with discretion. It must be remembered that the child is deaf, and that he is not going to respond like a hearing child the moment he puts on a set of earphones. The success of the training of residual hearing is in the hands of the teacher or parent, and will depend on her patience, skill, and knowledge of the correct use of the apparatus. Also, the child has to like putting on and wearing the headset, and be trained systematically in the use of it.

You may have found that, even after repeated effort, the child has failed to respond to sound with the unaided ear; that most favorable responses have come through the combined approach—visual, tactile, auditory—not through auditory channels alone. Perhaps he has heard faintly a few sounds, but not enough to bring accurate response. Possibly he has learned to imitate several sounds and is found to have a limited amount of hearing in the speech range, but not sufficient to interpret spoken language with the unaided ear. A powerful amplifier will benefit him in his education.

In the acoustic work, I have been using a group hearing aid with microphone and earphones. Since the children are preschool, most of the work has been individual. The use of this machine has proved to be a supporting factor in the progress of severely deaf children. Teachers and parents have used and are using to advantage a desk-type instrument with double earphones. (I might add that the parents who are doing successful work with hearing aids are those who have seen to it that they know how to use the machines properly. It is to be hoped that all teachers using them are well informed.) There are several firms that put out group aids. Persons interested in obtaining any type should see that they get expert advice, rather than resort to a trial-and-error approach.

*Part III of three parts. Continued from December.

I. Earphones and the Radio

Earphones may be attached to the radio at home. They are available in electric supply stores, and a qualified electrician will show you how to attach them to your radio. The child should have the privilege of using them when he wishes, rather than when the adult thinks he should. By that, I mean that he should not be forced to wear them against his wishes. If he has some say in the matter, he will be more willing to use them. One parent introduced them by wearing them occasionally himself while the child was in the room. Then they were left hanging in sight but out of reach of the child. Before long the little girl was asking to wear them herself.

This is a good introduction to the use of the hearing aid at school. The child gets practice in wearing a headset, in listening to or feeling impressions of different rhythms of musical instruments. He can be taught to feel the vibration by placing his hand on the radio, along with listening, and, with adult guidance, learn to keep time with the music by tapping or clapping.

II. The Hearing Aid and the Victrola

Suppose you have an electrical amplifier and a victrola run by electricity. Both are in a room at home or at school ready for use. The child may be curious about it and interested. If not, the one in charge will have to promote interest. (I mention the use of the victrola first, since music

has been found to be a very successful introduction.)

Have the hearing aid (with two earphones) and the victrola side-by-side. Turn on the hearing aid with volume at its lowest. Plug in the victrola, using a wall or floor outlet, just as you would for a lamp. Place the microphone near the loud speaker of the victrola. Put on a record and start the victrola. Have the child place his hand on the victrola and let him watch the record in motion. Turn up the volume so that he will be sure to feel the vibration. Put on the earphones yourself and let him watch while you listen. If the child doesn't exhibit a desire to put them on, suggest it to him, by offering them to him. If he shows no withdrawal, put them on him, being careful to adjust them so that they fit closely and directly over the ears.

Move Slowly

Turn up the volume of the victrola gradually and watch for response. There may be little or none, since the hearing aid is turned down. Turn it up gradually and once more watch for response. The child may react only to vibration at first. If he has had previous acoustic training, he will recognize the sensation as something on which to concentrate. Take off the earphones as soon as he shows signs of displeasure or irritation. Once again, the need for short listening periods must be emphasized.

At first, the procedure will consist only of listening and of getting used to the headset. Gradually more specific training is given.

Have on hand clear recordings of piano, violin, horn, band, and pictures of the instruments and of a band or orchestra.

The first step is to find out if the child knows when he is hearing sound. Put on a band recording and let the child listen. Turn up the volume gradually. When he shows response, let him listen for a while longer, then turn off the music, without the child's seeing the action. It is better to turn off the victrola rather than lift the arm, as the turning of the plate may produce enough sound to carry through the amplifier. The child may indicate through expression that he no longer hears anything. It may take some time for him to realize when he is hearing sound or feeling vibration, and when he is not.

If, after a reasonable length of time, he still does not know when the music is on or off, it may be that the whole idea is not clear to him; especially if he shows response when the music first starts. This is quite possible with a child who has had no auricular training of any kind, and in the case of a young child. In this case, the following may be a solution. Let the child listen and see the record playing, while his hand is on the victrola. Then, while he is still watching, turn it off and bring his attention to the fact that there is no more vibration. Repeat this, but have him hold his hands on the earphones.

Without seeing the record in action, have him feel the victrola and his earphones; then feel the vibration in the earphones only; then just listen. Keep turning the machine on and off at intervals. Before long you will find that he is responding favorably to this exercise.

Recognizing the Instruments

The next exercise is in learning to recognize musical instruments. Since the piano is most familiar to the majority of children, a piano recording, and one of a band, to which he already has been listening, might be the first used.

Put on the band recording and show the child a picture of a band. Keep time by clapping or tapping; clap your hands, then clap his. He is likely to need assistance at first; doing it unaided, his timing may be all wrong, and we must try to avoid this. If the situation is handled skillfully and pleasantly, he will think it fun having you clap his hands for him.

Tell him he hears a band, pointing to the picture. Keep him interested and get the idea of the band over to him through pictures and dramatizing along with listening.

Start the piano recording. Let him listen. When he responds to sound or vibration, show him a picture of a piano. Keep

time while he listens, refer to the picture occasionally, and pretend to play a piano as you beat time.

Play these records a few times, until he realizes through listening, vibration, rhythm, and pictures, that they are not the same. This leads to differentiating between instruments.

Play the band recording, and let him listen long enough to get an adequate impression of the sound and rhythm. Beat time. Place the two pictures near you, point to the band and tell him he hears a band. Play the piano recording and follow the same outline.

Now, without the child's knowing which is to be played, play one of the two selections and ask him what he hears, having him indicate the correct picture. If he does not respond favorably, show him. Do likewise with the other recording. Help him until he becomes more certain of what you expect.

Differentiation between the two records may take a long period of time, depending on the amount of hearing, attention span, and the previous training and rhythm work.

When he is sure of the difference, a third instrument is introduced. Contrast the violin and piano recordings until he can differentiate; then the piano and the horn, the violin and the band, the band and the horn, the horn and the violin. When this has been accomplished, let him learn to recognize any one of three records, then four, etc.

This training with music is pleasant for the child, is invaluable in developing a sense of rhythm, and is an interesting and sound introduction to further training with the hearing aid.

III. Vowel Sounds

Vowel sounds using the unamplified voice have been discussed. They have been used in word form, rather than as single meaningless sounds. When training with amplification, follow a similar procedure. Use the mirror as has been explained. It can be placed behind the amplifier. As the child progresses, the microphone may be placed on a table between you and the child. When using the paper to conceal your lips from the child be sure that you hold it behind the microphone, and not between you and the microphone.

Keep this work as informal as possible for the child. Talk about animal and pets and his experiences with them, in a conversational way. This not only holds his attention but gives him practice in the lip reading of natural speech with the assistance of the hearing aid. It makes the conversation easier to follow and more colorful.

Have on hand a good selection of animal pictures in order that the various activities illustrated will provide for continued interest on the part of the child. Whenever possible, have the child enter into the discussion and let him hear his own voice as he speaks or babbles into the microphone. For carrying out specific training with vowel sounds, put into practice the exercises previously outlined under vowel sounds and the unaided ear.

If a piano is available, use the amplifier and earphones along with it to develop hearing perception of various pitches and the ability to imitate different pitches of the sounds used. Follow the steps outlined for piano earlier in the program.

IV. Words, Sentences, Rhymes

Training the deaf child, through amplification, to recognize and differentiate between words may be introduced very early in the acoustic program. The foundation was laid when you started talking to him and telling him stories, then strengthened through acoustic exercises without amplification. If this has been done, the training using words with amplification will progress more quickly. The procedure will be the same as that outlined previously for training with words.

Remember that it is advisable to contrast words made up of a different number of syllables until the child is more familiar with the work, is more certain of what has been said, and has learned to differentiate between the various sounds

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A Recipe for Hearing*

Offered in a Personal Letter from a Lady Who Tried It

MY dear Mrs. Surda:

Our Mutual Friend tells me she believes you could hear if you knew how, and has asked me to give you my recipe for Hearing, made without eggs, without butter, without the so-called necessary ingredient, aural perception. Yes, that's right, Hearing can be made without one teaspoonful of aural perception.

In paragraph two let me assure you that little Elsie Dinsmore is not my favorite heroine, even though the rules I am about to lay down may have less the flavor of a cookbook and more the maxims of little Elsie's copybook. Arthur, you may remember, smeared the copybook most frightfully with ink, but then, Arthur never really attained the heights.

I was of the deaf, deafy. Oh, I might have been able to hear a cannon fired at close range, but since there are no relics of the wars in our city park, opportunity for testing this theory was lacking. Well, anyway, I was quite petrified of hearing and was rapidly arriving at the place where I did not care. Lip reading had brought me consolation and a measure of efficiency in understanding everyday conversation, most of which went in one eye and out of the other, until I had come to the conclusion I was really not missing a thing by not being able to hear.

Came a Night (Why do poets always have a Day Come? Much more interesting things can happen at night) when I was sure the most beautiful words in the English language were about to have their sweetness wasted upon desert ears. What to do? I reached for the switch, but the porchlight proved to be The Light That Failed (this is one of my literary days). Lip reading could not help me in this turning point in my career. And so—I lost him.

I resolved that I must have a substitute for lip reading, that I must learn to hear, so that a similar crisis could never again occur. And—none ever has. However, I am not sorry I learned to hear. There are other words in the English language. This very night I listened to Mrs. Franklin D. Roosevelt tell why every child should have a typewriter. And I was that proud because I have one. And even more proud of the fact that I heard every word Mrs. Roosevelt said, in view of the fact that five years ago I could not have heard so much as the sound of her voice. How did I do it? Let Elsie tell you: *Perseverance Wins!*

Perhaps you think I am going to tell you next that I remember perfectly having met Mr. Mr. Addison Sims five years ago in Seattle, but no, I have never met Mr. Sims, and probably could not remember him if I had. My memory for recipes is good, however, and I am going to inflict upon you every stage of the process of learning to hear again, even at the risk of having you think I am Mrs. T. Tooter Blowhard, herself.

My doctor had told me, years ago, that I had some residue of hearing if we could just get at it. His excavations were five hundred dollars per shovelful, and I ran out of five hundred dollar bills. One does, eventually. And, besides, I finally came to the conclusion that the residue was probably no larger than the one which befalls a widow whose husband has kindly willed her all that is left of his estate after his four children get their share. Really not worth getting at, but after the abovementioned crisis I was desperate. I was afraid I would die an old maid. Anything. *Anything.*

Having read of an instrument, now off the market, which could be attached to a radio, and which, it was alleged, would bring sound through bone conduction within the range of the listener's aural

*By Ruth Bartlett. Reprinted from the VOLTA REVIEW, February, 1935.

perception, I decided to try it. The fact that I had no radio and no hearing capacity did not deter me for a moment. I went, I tried, I heard—a squawk—and then silence. A squawk was better than nothing, perhaps there would be a squeak the next day, or a squall, or even a squeal. The quality was quite immaterial, I was after quantity. The quality could come later, and it did.

Practicing (or listening) an hour every day, and sometimes two or three hours during the day, within three months I was able to distinguish music from speaking, but was not able to tell whether the music was vocal or instrumental. At the end of six months I could recognize the voices of two radio station announcers and could distinguish the words, "Los Angeles" and "California" because they were repeated so often.

This progress did not come about through picking up the instrument, listening a few minutes, and then trying to read or sew or play bridge, distracting the mind and allowing the sound to register as sound and nothing more. It came about through the most grueling concentration I have ever been able to force myself to endure. Complete exhaustion was frequently the aftermath. I literally taught, and forced, my hearing to pick up sounds long-lost and to distinguish them. Nothing else was attempted during the practice hours. Discouragements were numerous, days when there seemed to be no progress, days when not one word could be distinguished, days when the Philharmonic Orchestra sounded like the Hometown Army Band. And a dreadful day when I dropped the instrument, breaking it. Repairs were not to be had because the parts were no longer being manufactured. But that proved to be a "lucky break" for I soon discovered that I did not have to have that particular instrument. Any sound transmitter that can be pressed against my ear or my cheekbone is satisfactory. A pair of powerful hearing aids were substituted and the work went on.

Yes, I mean work. Make up your mind before you begin what it is worth to you to be able to hear again. Are you willing to devote three years, perhaps more, to practicing one, two, three hours every day? Are you willing to think you are doing famously if you can understand one word out of ten at the end of a whole year of the hardest work you ever did? Are you willing to listen for hours on end to music which resembles nothing so much as a children's concert upon the noisiest of kitchen utensils? All right then, pick up your ears and hear.

One night (I told you nights are best) after more than three years of practicing, I decided to tune in on a speech made 'way back in Indianapolis by Herbert Hoover in his campaign of 1932. I knew I could read the speech the next day in the paper and check up on what I had heard—or had not heard. You may believe I was happy when I found I had not missed a word. That I cannot remember a one of those words, now, is beside the point. I have not taken that high-pressure memory course, or I'd have remembered Mr. Sims. Whether I had met him or not.

I had never heard jazz. It is quite probable that I would have lived just as long had I been left in my original state of innocence concerning such nerve-racking syncopation. Still, I feel a bit more modern singing "Two Cigarettes in the Dark" than I do when singing "School Days," which happened to be the first oldtimer I could follow all the way through when I began to recognize parts of familiar songs. It is a pleasure to keep in touch with both old and new songs. I have trouble even yet, and perhaps I always shall, in understanding the words if more than one person is singing, but I can easily turn the dial and pick up one glorious voice that will compensate for anything I may have missed in a rendition by the Fifth Methodist Church Quartet.

There are other compensations, too. I found that the quality of my voice, my accent, my phraseology, and my style of delivery are quite, quite out of date. Perhaps I should say *were* out of date, for

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Hearing Aid Users Are Not Freaks*

By WALTER T. RIDDER

I WEAR a hearing aid. I've worn one now for some twelve years and have made the painful transition from the old-fashioned Model T sets to the present highly efficient acoustical aids.

With each new model, I have received a booklet of instructions on how to use the hearing machine. Unfortunately, the hearing aid companies don't issue a set of instructions to give people who don't wear them, telling them how to behave with those who do have the "funny things behind their ears." This column is intended to supply that deficiency.

The average hearing aid wearer is perfectly delighted to answer any reasonable questions about his mechanical device. If you show a lively interest and ask intelligent questions, we're perfectly willing to make replies. But we don't like questions such as: "Young man, aren't you ashamed to wear a hearing aid at your age?" No, of course we're not ashamed. The only shame involved should be that of the person asking such a ridiculous question.

Yes, most of us can hear something without a hearing aid. For some obscure reason, people believe that when we take off the machine, we plunge ourselves into a noiseless world unshatterable by even an atom bomb. You don't expect people with glasses to be absolutely blind minus their lenses, so don't expect us to hear nothing when our machine is turned off.

Many of us could get along without the hearing aid. We wear them because they facilitate hearing and because it's a lot easier on you than if we leave them aside. With the hearing aid, you don't have to shout at us, and we don't have to ask you to repeat half of what you say. It's just as tiring for us to strain to hear you as it is for you to keep shouting at us. So you're the gainer when we wear our devices.

When we do wear our machines, the necessity to shout at us almost disappears. In only a few of the most difficult cases do wearers of a hearing aid need to be addressed in a tone reminiscent of Hitler giving a speech. Just talk naturally when you speak to a hearing aid wearer. He'll adjust his machine to your voice.

It is apparently an irresistible temptation to shout the moment a hearing aid is spotted and the wearer, therefore, branded as "deaf." You don't need to shout at us any more—that's why we wear the machine.

Children show a natural curiosity in the little black thing appearing in a person's ear or immediately behind it. When your child asks: "Daddy, what's that funny thing the man is wearing in his ear?", for goodness sake tell him. Tell him it's something to make the man hear better. But please, oh please, don't hush the child and whisper in his ear and carry on as though we were stricken with some obnoxious social disease acquired in the brothels of the Far East.

If you answer forthrightly and honestly, the child's curiosity will be appeased and your visitor will be made comfortable. Nothing in this world is so annoying as to have some mother and father act as though our partial deafness were something for which we are personally responsible and which bears with it some stigma of social undesirability.

While the price of a hearing aid is gradually being reduced, it still costs money and thus is not a play toy for the amusement of would-be humorists. For instance, no one likes the playful fellow who greets you with a thumping thwack on the back.

Well, we hearing aid wearers don't see

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*This paper originally appeared in the *St. Paul Dispatch*, under the title "Use of Hearing Aid." It is reprinted from the *News* of the St. Paul Society for the Hard of Hearing, 496 Endicott-on-Robert Building, St. Paul, Minnesota.

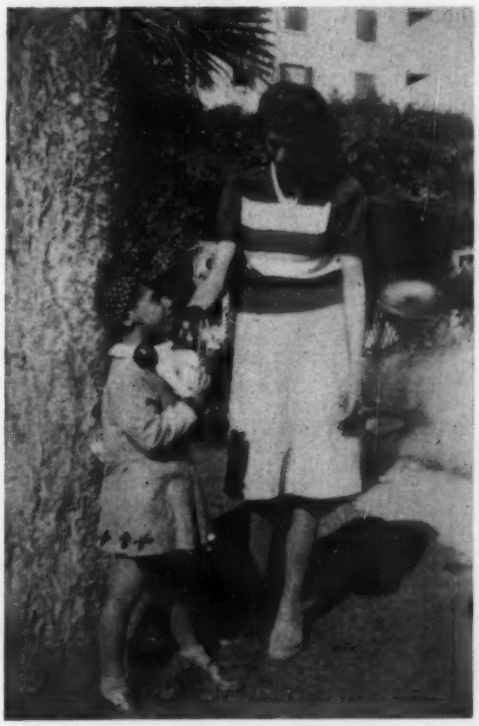
The Deaf in Egypt

MADAME TSOTSOU IS AT THE RIGHT, TALKING TO THE GROUP

A RECENT letter from Egypt brought the news that the education of the deaf in that country, which for many years had received scant attention, is now progressing well. A school for about twenty Egyptian deaf children has been opened in Cairo, and a government school is being launched in Alexandria, where for some time a Greek lady, Madame Semely Tsotsou, has had a private school known as "l'Espoir."

In one of the accompanying photographs, Madame Tsotsou is shown with the five members of her teaching staff, three Egyptian and two Greek. The other illustration shows a little deaf Greek refugee, Athanassia Boubouly, with an Egyptian teacher, Miss Fauzia Mohamed.

Madame Tsotsou is the inspector of the new school at Cairo and is in charge of the training of teachers. Fifteen Egyptian teachers have completed her training course and the government has issued an Arabic edition of her book, "A Method of Demutization," originally published in French.



ATHANASSIA BOUBOULY AND HER TEACHER

Congressional Aid to the Handicapped

Report of the Congressional Committee on Labor, Subcommittee to Investigate Aid to the Physically Handicapped

IT was on May 6, 1943, that Augustine B. Kelley, United States Congressman from Pennsylvania, presented to the House of Representatives a resolution that the Committee on Labor study conditions relating to the physically handicapped, their employment opportunities, and other questions which would aid Congress in passing any necessary remedial legislation. A subcommittee was appointed and many public hearings have been held during 1944, 1945 and 1946, permitting individuals and organizations to testify as to the needs of the physically handicapped.

On September 13, 1944, Miss Josephine B. Timberlake, speaking for the Volta Bureau and its Board of Directors, summed up recommendations for the deaf and the hard of hearing as follows:

"1. Strengthen and broaden the work of the United States Vocational Rehabilitation Service, to the end that assistance of the type outlined in its 'Manual for Rehabilitation Case Workers' (February, 1941) may be made available to the deaf and the hard of hearing in all parts of the United States.

"2. Support and extend the service of the United States Office of Education in its department for Exceptional Children, to the end that model programs for the academic and vocational education of the deaf and the hard of hearing may be publicized and stimulated throughout the country.

"3. Hasten the equalization of educational opportunity for all children in all the states, especially considering those children who are physically handicapped."

Now that all open hearings, at which almost 500 persons testified, have been concluded, the Subcommittee has handed in its final report. Some excerpts are given here, to point out a few highlights and recommendations of particular interest to those with hearing handicaps.

Excerpts from the Report

"The physically handicapped would benefit by having grouped under an executive department, headed by a member of the President's Cabinet, the Federal agencies administering health, welfare, education, and social-insurance programs.

"Consolidation of organization on the Federal level will soon lead to consolidation of organization on the State and local levels. It is not necessary to disturb the organization of present public and private agencies to any significant degree—it is necessary to place in the community a person who knows where such agencies are, what they do, and how to bring the person needing the service to the agency which may render it to him.

U. S. Services to the Physically Handicapped

"In the new department it [the Office of Vocational Rehabilitation] should serve as a basis for an expanded service to the physically handicapped. . . . Expansion of the existing service, rather than the creation of a new organization, is suggested. . . . The Director of the present Office of Vocational Rehabilitation has informed the subcommittee that nearly 80 percent of disabled persons can be rehabilitated without the use of special types of facilities. . . . It is for the 20 percent that the lack of special facilities is acute. . . . They will need, if they are hard of hearing, facilities for testing and fitting hearing aids.

Employment

"The techniques of selective placement need further study. . . . Many more people need to be trained to carry on this work. . . . As recently as 1945 three persons con-

(*Continued on page* 44)

In the Books and Magazines

And Hearing Not, by Earnest Elmo Calkins. Published by Charles Scribner's Sons, New York, 1946. Illustrated with photographs of the author and his family, and with display advertising. Bound, 387 pp. Price $3.75.

This is the autobiography of a man whose middle name dates him perfectly, for it was taken from the title of the best seller at the time of his birth, "St. Elmo."

The author, for many years a much-appreciated VOLTA REVIEW contributor, has told his story in three parts. In part one, "Learning to Live," he writes of himself in the third person, calling himself the "Boy," and treats objectively the effect parental influence, endowment, environment, and an inordinate interest in books had upon him. At the age of twenty-three, he says, "this Boy was turned over to me. . . . . and from now on I will speak of him as myself." Parts two and three, "Making a Living," and "Joys of Life," are written accordingly in the first person.

"Everything that happened to me," writes Mr. Calkins, "seems to be part of the plot and to forward the action, especially my deafness." It is this determinant for the autobiography, rather than the "Annals of an Adman," interesting though they are, which makes the story of particular importance to us. In his education, his introduction to the printing trade, his interest in fine books with unusual type, his venture and prominence in the advertising field, in all these "deafness was the ever present influence. It made or marred my attempts to earn a living, it selected my friends for me, and determined what I was to enjoy of social life, what my amusements were to be."

Written in a delightfully simple and charming manner, *And Hearing Not* carries the reader from Illinois to New York and back again, through the varied experiences of a severely deafened author who says, "I exaggerated the difficulties deafness placed in my way, overestimated the abilities of those around me, and correspondingly underestimated what little endowment I really possessed."

In spite of, or perhaps because of deafness, Mr. Calkins has achieved success, measured by any standards, but most assuredly by his own yardstick which consists in finding work in which one is happy and which supplies the means of existence.

—H. S.

New Ears for the Deaf, by Steven M. Spencer. The Saturday Evening Post, August 31, 1946. 10c per copy.

Written from the layman's point of view, this article sets forth the whys and wherefores of the Aural Rehabilitation Centers of the Army and Navy. Mr. Spencer gives a brief account of the background of the programs' inception, mentioning such familiar names as those of Doctors Hughson, Mobley and Truex. He cites some of the causes of deafness among the servicemen and states that "a surprising number—about 40 per cent of the total—brought their deafness with them into the Army or Navy from civilian life."

The author gives an outline of the training program offered in the three Army and one Navy Hearing Centers, with particular allusions to the work done at Borden General Hospital, which at the time the article was written was the only Army center still in operation. His description of the technical aspects of the testing rooms and the methods used to insure complete accuracy is clear and easily understood.

Mention is made of a survey which indicated that 94 per cent of the men who had been through the Army-Navy program were still using their hearing aids three months to two years after they had been issued. So successful has been the Aural Rehabilitation program that the Navy is continuing its program in Philadelphia and the Army is setting up a permanent installation in the Washington area for the care of hard of hearing soldiers.

—S. P. S.

The Art Teacher, by Pedro deLemos. The Davis Press, Inc., Worcester 8, Mass. Cloth, 384 pages. Price $5.00.

This latest completely revised edition, copiously illustrated in rich colors as well as in black and white, is overflowing with ideas for projects. Drawing, painting, cut paper work, modeling, lettering, sewing, weaving, and puppets are just a few of the subjects covered. There are working plans enough to last for years.

Selection of Hearing Aids, by Captain Raymond Carhart, from Archives of Otolaryngology, 535 North Dearborn Street, Chicago 10, Illinois, July 1946. Single copy, 75c. (Dr. Carhart is now with the School of Speech, Northwestern University, Evanston, Illinois.)

This article by Capt. Carhart is an important contribution to the subject of proper hearing aid selection. Setting forth the program used by the Army Service Forces at Deshon Hospital in the selection of hearing aids for individuals, Capt. Carhart's article should be of great interest and value to civilians. The paper is concluded as follows:

"Step 12. Attention to a patient's hearing aid does not cease when he has received his own instrument.

"Each patient is given careful instruction in the care and the maintenance of his hearing aid.

"Each patient receives formal auricular training with his own aid. This training is as extensive as his needs demand.

"Finally, the use of the aid is incorporated in the patient's speech correction and lip-reading work in whatever manner his instructors deem wisest. . .

"In summary, the Deshon program for the selection of hearing aids consists of four major parts:

"1. Initial exploration of each patient's needs and appropriate decisions based on these needs;

"2. Preliminary screening to eliminate undesirable instruments and reduce to a workable number the instruments which are sufficiently promising to warrant further study;

"3. Further screening through the "trial use period" and through the "listening hour" to select the three most promising instruments;

"4. Detailed testing—in the 'hearing aid evaluation'—to determine which of the three instruments yields superior performance when worn by the patient."

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Help for the Hard of Hearing Child, by Donald R. Caziare, Hearing Conservation Specialist, California Bureau of Maternal and Child Health. *California's Health*, bulletin of August 31, 1946, Department of Public Health, Sacramento. Three page article. No charge.

Efficiency of the Impaired Worker, Rehabilitation Services Series No. 1, Office of Vocational Rehabilitation, Washington, 25, D. C. 12 pages, including bibliography. No charge.

Opportunities for the Deaf and the Hard of Hearing through Vocational Rehabilitation. 12 page booklet, same source as above. No charge.

This Sounds Useful

Two engineers have invented and produced a radio receiver, called "Electronx," which, besides providing radio entertainment, also carries your voice over electric light wires from point to point without special intercommunication wire. By plugging it into the nearest electric light socket, speech can be transmitted to another person who has a similar instrument in another room.

—*Electrical World.*

British League for the Hard of Hearing

The story of The British League for the Hard of Hearing, organized in London by Miss Maude Randle in 1923, is attractively told in the September issue of *Everywoman*. It is a two-page story with half a dozen good illustrations. The magazine is the popular type that is read in the home by "every woman."

Our Miscellany

Gifts Across the Seas

The Lynchburg Society for the Hard of Hearing was without a central headquarters last year, so the members met in first one home and then another. A surprising amount of handwork has been turned out. The eighth quilt was finished last summer and sent to the Hertfordshire League, in England, to be placed in some home where bedding was needed. The members of the Lynchburg Society appreciate knowing who is the recipient of their gifts. For instance, one of eight afghans made by the members was sent to Holland, through a church, and it was gratifying to receive a letter from the family that is now using it.

The latest type of handwork is stuffed animals for European children. Rabbits, giraffes, lambs, elephants, and horses make up the menagerie, besides two lovely large dolls, a boy and a girl, and six small dolls. These will gladden the hearts of boys and girls across the seas.

Hard of Hearing in Scandinavia

The Volta Bureau has had an interesting letter from Mr. E. Thorbjorn Jensen, memof the Board of Directors of the Society for the Hard of Hearing in Aarhus, Denmark, giving news of activities among the hard of hearing in the Scandinavian countries. Excerpts from the letter follow:

"As you know, we have associations in Norway, Sweden, Finland and Denmark. Now that peace has come to Europe, we are coming to the time when we must begin to rebuild our associations to even greater strength than before the war. We want to establish connections with other hard of hearing associations throughout the world. If any directors of societies for the hard of hearing in the United States should read this article and wish to correspond with directors in various Scandinavian towns, I will be glad to distribute their letters if they will write to: E. Thorbjorn Jensen, Hans Schourupagade 10, Aarhus, Denmark.

"In July there was an international meeting of the association for the deaf held in Fredericia, Denmark, to discuss an official course in lip reading. There were members from Norway, Sweden, Finland, and Iceland. Professor H. M. Hansen of the University of Copenhagen opened the meeting, and there were discourses on courage in life and on the tasks and future hopes of the Society.

"New friendships were made and old ones re-established. The delegates from Norway, Sweden, Finland, and Iceland spoke in their own tongues to thank the Danish society for its hospitality. In the evening, many of us took a walk around the beautiful old bastions with their memories of the Battle of Fredericia in 1864, and later we had a delightful dance, which we enjoyed until 2:30 A.M. We all joined in singing the songs of our native lands, and entertainment was offered by a Norwegian mountain-girl who sang the Norwegian folk songs most impressively.

"We send our best greetings to all the American hard of hearing."

Civic Aid in Kalamazoo

The Constance Brown Society for Better Hearing was formed in Kalamazoo, Michigan, in May, 1942. Mrs. Constance Brown had stipulated in her will that, following her death, her estate was to be held in trust by the Kalamazoo Foundation until some organization was ready to aid the deaf and the hard of hearing.

The Kiwanis Club of Kalamazoo took up the challenge, studied the question, made surveys and helped to form the Society. Through the Club and the Society, a group hearing aid was presented to the Harold Upjohn School for Special Education. Hearing tests in the public schools, medical clinics, consultations with parents, help in filing veterans' claims, hearing-aid consultations, and employment advice are among the services rendered by the Kiwanis-sponsored Society.

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Molly Mather's Mail Box

(*Continued from page 27*)

piece or the transmitter; it is the wild cord. I do hate most terribly to have people say, "Excuse me, you have a string hanging down." I wish we had more of those attractive necklaces. I used to have one in gold that I wore with evening dresses. Why can't we have reasonably priced plastics of various types, or some sort of clip to fasten the cord to a silver necklace? I wish there were some place or some method to fix the cord so people would know the "string" is purposeful and not just an example of slovenliness.

M. H., DAYTON, OHIO.

Well, M. H., I think people are getting more and more accustomed to the "string," just as they are growing accustomed to the little plastic earpiece. One sees them everywhere now, and little attention is paid to them. There are plenty of people who cannot use a hearing aid who would be glad to wear ropes down the backs of their necks if thereby they could hear a little.

Anyhow, once more, here's Happy New Year, everybody, and some good luck along with it. The good luck I am currently contemplating is a couple of tickets in the front row of the Philharmonic Auditorium where Maurice Evans is to perform in Hamlet. Next month, I'll tell you all about it, though I shall probably have to rejoice all by myself, as I seem to be the only deaf person who really enjoys the theatre.

Do any of the Mail Box fans like to go to plays?

Sincerely yours,
MOLLY MATHER.

The Smithsonian Institution

It is of national interest that the Smithsonian Institution in Washington, D. C., is celebrating its centennial anniversary this year. In the Smithsonian, an American tradition, one finds chronicled the story of mankind—its cultures, arts and sciences. Dr. Alexander Graham Bell was for many years a member of the Board of Directors of the national museum.

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Workmen's Compensation Insurance

In response to numerous complaints from widespread sections of the country that some employers are failing to hire disabled veterans on the ground that it is either forbidden or heavily penalized by workmen's compensation insurance contracts, J. Dewey Dorsett, General Manager of the Association of Casualty and Surety Executives, issued a sweeping denial that there is any provision in insurance policies or rates on which to base such statements.

Employers who make any such claims are sadly uninformed about the provisions of their workmen's compensation insurance policies. There is nothing whatever in the policy which forbids or even advises against the employment of any disabled person, veteran or non-veteran. Neither is there anything in the rating formulae which even takes into account whether or not an employer has disabled persons in his hire. A workmen's compensation insurance policy says nothing whatever, implied or direct, about the physical condition of persons an insured employer may hire. Neither directly nor indirectly is there anything in the rating formulae or schedules which says that an employer shall be rated up or down because he does or does not employ disabled persons.

Hearing Aid Users

(*Continued from page* 34)

anything funny in the guy who can't resist giving the visible wires a jaunty tug or two. Outside of the sheer bad manners involved, the "friendly" tug can break the wires or pull them out of their sockets and not only cause general inconvenience, but can cost us 50 cents or so. So, keep your hands off our hearing aids.

The same thing goes for the "let me try it on" clique. Most of us who wear hearing machines are crusaders for the cause of better hearing and don't like to refuse such requests, but just the same, we'd rather not have other people fiddling around with what is, after all, a relatively expensive bit of machinery. If you must try one on, go to your local hearing aid

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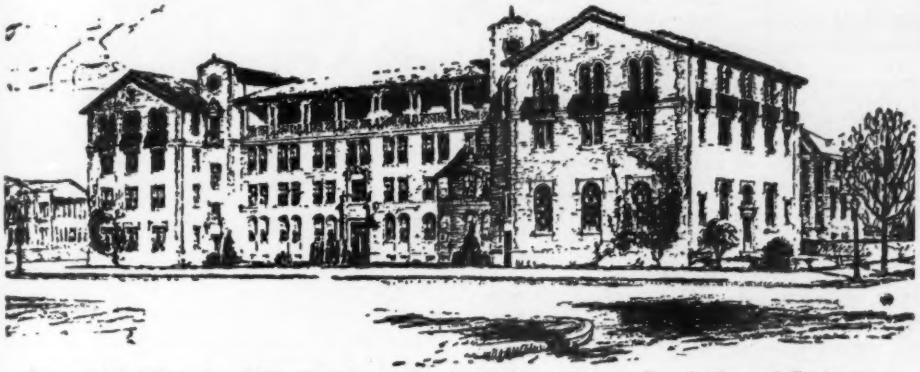

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Congressional Aid

(*Continued from page* 36)

stituted the entire staff working on this problem in the national office of the Employment Office Service Division of the USES, and only 9 states had full-time supervisors for serving the disabled. . . . The United States Employment Service should be designated as the Federal agency responsible for employment services to the physically handicapped.

Research

"The needs are many: We need better artificial limbs. We need better hearing aids. . . . We need more knowledge about the effects of noise on hearing.

Accident Prevention

"There are too many accidents; they happen, largely, for reasons we know how to control. . . . It is contrary to common sense to spend an average of $300 to rehabilitate a physically handicapped worker who need not have become handicapped if a few dollars had been spent on a safety program to prevent his injury."

Rehabilitation Centers

"The United States Office of Education estimates that little more than 10 percent of the children who would benefit from special education are now being provided with such education. . . . Teachers of the deaf and hard of hearing were mentioned as most difficult to obtain. . . . Much can be accomplished through tests of vision and hearing in the saving of sight and the prevention of hearing loss, if tests are followed up with medical treatment where the need is indicated.

The Man Who Wouldn't Stay Licked!

. . . . and so, Bill, I'm back on top again. Yet only a year ago I thought I was licked because my hearing had gone bad.

It must have been failing for years but I didn't realize it. When I did, I wouldn't admit it. Then came the day my bad hearing really threw me for a loss. I unintentionally said "no" when I should have said "yes".

After that, I got hold of myself and went to an ear specialist. He recommended a hearing aid. Fortunately, I tried a Zenith.

So now I'm sitting pretty, hitting on all eight cylinders. Yep, Bill, I can hear again, and the world's my oyster . . .

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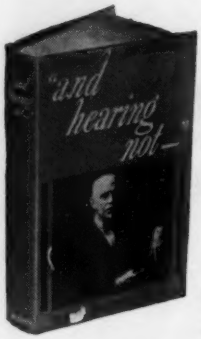

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"Because there were specific complaints that no Negro had ever been admitted to the federally supported college for the deaf, the subcommittee undertook to gather specific information concerning college education opportunities for the Negro deaf. . . . Either the present college should be expanded and made accessible to both white and Negro deaf found to be qualified for college work, or a new college for the deaf should be established.

For copies of the report, write to the Hon. Augustine B. Kelley, House of Representatives, Washington, D. C.

—L. S.

A Recipe for Hearing

(*Continued from page* 33)

I have been trying so hard to improve and have gone so modern that my friends no longer recognize me when I speak to them over the telephone.*

Seriously, it is important to keep up with all the changes in social life. You would not think of wearing dresses above your knees, as we did in 1928. You can see for yourself that there is a change in this regard. There are changes in things heard, too, in manner of speech, in music, and—in slang. And how slang dates one! If you are still talking about Boy Friends instead of Twerps you are an old lady of twenty-five or more. And so, it is important to hear as much as you can and know what is going on.

To me, the work of three years is a mere pittance in payment for the priceless privilege of hearing once more the voice I love best, the music I love best, and, the Talk of the Town.

There is just one fly in the ointment, one cloud in the sky, one static in the perfect reception—I am still an old maid.

*When this was written, although Miss Bartlett often talked to her friends on the telephone, it was necessary for her to receive the replies through a third person.—ED.

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Without obligation, prove to me that the new Beltone Mono-Pac will help me HEAR BETTER.

Name .....

Address .....

City ..... *Zone* ..... *State* .....

Day Kindergarten

(*Continued from page* 28)

Mothers attend and assist in school routine at least once a fortnight, thus helping them to understand their children better.

The children have improved under this method and though the parents are aware that it is not the answer to all their prayers, it is at least stimulating the children's speech and hearing.

American teachers have often helped schools in other countries for a year or more. The Volta Bureau will be glad to forward any letters from teachers who are interested in the possibility of responding to this call.

An Acoustic Training Program

(*Continued from page* 31)

which he may hear or which he feels through vibration.

Use the clapping or tapping idea. Always let the child see, hear and feel before expecting him to understand through the ear alone. The deafest of children can be taught to recognize many words through the ear by differentiating between vibrations and rhythm.

The same facts hold in the use of sentences. When the child is at an age when earphones can be used for training, if he hasn't learned to differentiate between words and sentences without amplification, he will learn to do so with amplification, even though the amount of sound he hears is limited to the smallest degree. Continue exercises with the unaided ear, also.

When the child has learned to respond to and differentiate between many sentences and words with which he is familiar, the teacher or parent may introduce Jingles and Nursery Rhymes. Keep time to the rhythm of the poem or rhyme. After dramatizing and lip reading these stories, and listening to the different rhythms and to whatever sounds he may hear or interpret over the hearing aid, the child will learn to differentiate between rhymes, and to repeat them later on when his speech vocabulary is large enough. He learns, in time, to recognize the accented and un-

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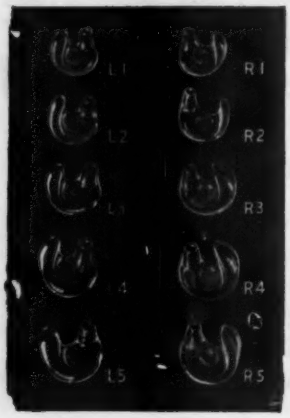

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accented words; and after listening to and watching you, will clap out the rhythm by himself.

V. Lip Reading and the Hearing Aid

Throughout this program there has been a great deal of repetition of sentences, words, phrases, stories. Every exercise has involved much lip reading and the opportunity for imitation in speech. If the child was not familiar with the words at the beginning, however long the exercise has taken from the hearing viewpoint, you know that, at least, he has learned to lip-read and understand them. If a child has had repeated difficulty, in lip reading, with certain words or phrases, I have found that by using them in acoustic exercises, whether in general conversation or in a specific lesson, the difficulties have slowly disappeared.

The Training Pays Dividends

The details of this program might seem to indicate that, if it were carried out, there would be little time left for anything else in the education of the deaf child. On the contrary, it can be used successfully with very deaf children, spending no more than five to ten minutes a day. It is a fact that the deafest of children have progressed at a rapid rate in speech, lip reading, and language understanding, through the few minutes of acoustic training they have received each day.

In time, the child may seem to be hearing more, and the parents come to think that his hearing is improving or being restored. The fact is that the same amount of hearing was there in the beginning; but with proper training, he has learned to make full use of the little he possesses. That, along with lipreading, gives him a better understanding of language, and therefore, his entire educational process is accelerated. Acoustic Training is not the sum total in the education of the deaf; but on the other hand, the education cannot be a total one without it.

As time goes on, the child who is found to have some hearing in the speech range may spend longer periods using the hear-

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Because good hearing is so precious, the most important consideration in selecting a hearing aid is its performance . . . its ability to help you hear better.

Every detail in the design and manufacture of the Western Electric Model 64 Hearing Aid contributes to its fine performance. This instrument is designed by Bell Telephone Laboratories and produced by Western Electric. All of the experience and skill of these two great organizations have been combined in this hearing aid to give you better hearing for today . . . and for years to come.

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High School for the Deaf

Four Years High School, Trades, Industrial Arts, Speech, Speech Reading, Auricular Training with Hearing Aids

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ing aid. The very deaf child, and the one who gets little or no sound, cannot afford to spend much of the day wearing earphones, because his education involves other specific training, too. However, no matter how deaf, every child, all through school, should have some systematic training every day.

Interested, well-informed educators of the deaf know the value of this training, and realize that it should have a definite place in every curriculum. It is never too late to start, and never too early. Parents have a golden opportunity to start the work at home. Teachers, depending on equipment, interest, and cooperation of authorities in the school, will find the educating process a more inspiring one and more meaningful.

The deaf child is not going to become a hearing child. But, if he has some conception of sound and speech, he will be much more like his hearing brother. Training the deaf child through every channel—tactile, visual, auditory—is the only way to help him develop a well-adjusted personality so that he may experience in a hearing world the happy life to which he is entitled. *It can be done.*

Learn to Listen

(*Continued from page* 21)

9. Try to anticipate the thought to be expressed. Repeat out loud, as rapidly as it is spoken, what you hear from a speech recording or a radio broadcast. Imitate the inflection as closely as you can. This not only quickens your hearing, making it keener and more accurate; it gives you better breath control, strengthens your own speaking voice and helps you to modulate it better.

10. In studying with phonograph recordings it is better to repeat the parts difficult for you to hear, and practice these over and over until each is mastered, rather than to repeat the whole record too many times.

IT'S HEADLINE NEWS FOR HEARING AID USERS

THE NEW PERMO-MAGNETIC RADIOEAR

A HEARING AID WITHOUT CRYSTALS

Introducing an entirely new magnetic microphone; built in both one-piece and two-piece models—but that is only part of the history-making story of the Permo-Magnetic Radioear:

NO CRYSTALS! In this new Radioear hearing aid *there are no crystals.* Neither heat, moisture nor age will affect the efficiency of the Permo-Magnetic microphone or receiver! At one stroke all crystals have been removed from the entire hearing aid.

PHONEMASTER! The Permo-Magnetic Radioear introduces a new way of hearing over the telephone. The new "Phonemaster" is a special detector that picks up the audio-magnetic waves from the telephone receiver before these waves are converted into sound. With the speed of light and the fidelity of radio transmission . . . *with no loss in tone quality* . . . these waves are transferred to the Radioear amplifier and to the hearing aid receiver. (It works just as well with your radio, too).

NOISEMASTER! A new dual tone control system has been designed for the Permo-Magnetic Radioear microphone which permits you to concentrate on the sound of voices you want to hear while it reduces the disturbing street noises . . . an amplifier that can be adjusted with precision in either the high or low frequency range . . . and a new "Noisemaster" feature that operates with a flick of the finger and gives you hearing in unusually noisy places where you thought you could *never* hear.

QUIET! The Permo-Magnetic Radioear is the *quietest* Radioear ever made. It does away with all openings in the front of the microphone, eliminating for almost everybody, the annoying clothing and cord noises.

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HEARING SURPRISE! For those who demand a hearing aid of uncompromising quality, the new Permo-Magnetic Radioear will prove a revelation. Both the Uniphone (one-piece) or the Multi-power (two-piece) models use air or bone conduction receivers.

See them in the office of your nearest Radioear Distributor. Be prepared for a hearing surprise! They are the greatest of a long line of Radioears . . . and remember, *Radioear is Permo-Magnetic!*

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11. Repeat. The purpose of the practice is to develop and establish correct sound patterns in the mind, mental alertness, instantaneous and correct interpretation. This can come only through many repetitions. Make sure that on each repetition your interpretation of what you hear is correct.

12. Review. Because you studied a speech, song or orchestral record yesterday, a week, or a month ago, does not mean that you have exhausted all its practice value. Remember you are developing *skill* in listening and interpreting what you hear.

13. Listen for, and respect, time values. In music the "rest" is of as much importance in its relation to the composition as is a full, complete measure. In speech a pause often accentuates the meaning as much as a rapid, fluent, complete sentence. Rests in music, pauses in speech, constitute special hazards to the beginner in auricular training. The pupil's first need often is to learn to recognize the beginning of sound and its cessation.

14. Memorize sounds and their meanings. Developing memory is like developing a muscle—it responds to training. Devote part of a practice period to memory work. Memorize songs, the sound of words, the timbre of musical instruments, and human voices both singing and speaking.

15. "Practice makes perfect" is not in itself a true maxim. Only intelligent, constructive, well-guided practice makes perfect.

16. Don't let yourself become easily discouraged. Every student may feel at times that he is making little progress. He may wonder if the results are worth the effort. Anything that is worth having has to be worked for. Keep your mind fixed on the goal, and see if you cannot work your way out of blurred, indistinct, uncertain hearing, into clear-cut, distinct, certain response to any sound that is brought within your hearing range. If *possible*, seek the help of a good teacher who can show you *how to work* so that you may continue alone this fascinating study. Remember, no hearing aid has to learn to listen—only its user!

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TOLEDO 10 (Ohio)
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2431 14th St., N. W.

The Parents Talk It Over

(*Continued from page* 24)

awhile, and soon I hear that tinkling sound and head for it. It is a reassuring sound to hear when your child is outside and you are too busy to look out every two minutes.

Mrs. P. and Mrs. B. are certainly right in saying we are especially sensitive to our children's getting hurt. It always hurts the mothers more than the child. And I'm sure, as Mrs. B. says, that the older children understand better.

Another thing I was sensitive about, but am overcoming, is Janet's giving the impression, to those who don't know her, that she isn't quite bright. She gets very excited on the bus, and will point to things and jabber so loudly the whole bus can hear her. I don't try to "shush" her anymore, but look very interested in what she wants to point out and disregard the strangers around. They are of no importance to me and their opinions matter little.

We all wonder if it isn't vibration the children notice when there is a loud noise, just as little Frankie E. noticed the thunder. But if it is the vibration that makes Janet sit up and notice the loud noises, why doesn't she have the same reaction when a big truck shakes the house? And why would the children point to their ears if the vibration were the only sensation they got? There are so many whys, but not enough answers.

Raymond O'M. is in a chewing stage. (How many stages are there they can get into?) Both my babies are thumb suckers, but Janet has reached the age where she should give up that habit. So we just put some evil tasting stuff on her thumbs, and believe me it works. The fact that her thumb is denied her doesn't disturb her in the least. You might try buying some "Quit-It" at the drugstore and putting a few drops on the things Raymond likes to chew most. I'm sure he wouldn't like it long.

MRS. M., Oregon.

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Social Welfare Work in South Africa

The South African National Conference on Post-War Planning and Social Welfare Work was held at the University of Witwatersrand, Johannesburg, in September, 1944, but the report was not available in printed form until this year. It is worthy of note that the Rev. G. de la Bat, Principal of the Worcester School for the Deaf, and Col. M. C. Rowland, Chairman of the National Council for the Deaf, were invited to participate in the program. A thorough program was outlined by the speakers, embracing education, training, welfare work and employment opportunities for the deaf and the hard of hearing.

I Have Learned to Hear Again

(*Continued from page* 15)

4. Practice ten minutes twice each day with a group of words such as:

met	sit	To identify the vowels.
mitt	set	
mutt	sat	

sun	met	To identify the consonants.
done	wet	
fun	pet	

Learn to distinguish slight changes in sound without looking at the speaker.

5. Attend the movies, especially dramatic plays that have more speaking than action.

6. Attend concerts or listen to radio concerts. And don't just sit there and let the sounds float above your head. Reach out for individual sounds; pick out voices, notes, instruments.

7. Listen every day to someone who is extremely difficult to understand. He probably is not speaking a foreign language, just Americanese.

8. Listen to sounds you cannot identify. Listen, listen until you can say "That's a woodpecker," "That's the tea kettle boiling," "That's a truck roaring over the river bridge."

9. Don't make excuses for yourself or

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"All-in-One" HEARING AID

SLIM AND SLENDER — FITS POCKET OR PERSON — EXCLUSIVE PLASTIC INTERNAL-TYPE CHASSIS GUARANTEES QUICK SERVICE AND QUIET OPERATION

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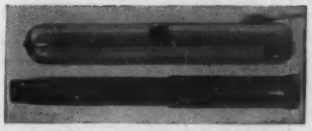

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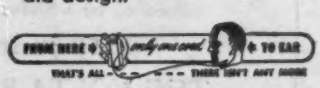

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your instrument. Of course it makes you nervous. Of course you cannot hear perfectly with it. Of course the battery is low if you have used it too long. Keep yourself and your instrument in top form.

10. Work at it. Hearing comes naturally to one who has normal hearing equipment, but understanding comes only through effort. All of us worked many years in school learning to understand what we heard. We had to learn how words sound and to associate them with the proper object or thought. Most of us were in school at least seven years, some of us two or three times seven years. But—supposing it were seventy times seven years—wouldn't hearing be worth it?

Testing the Performance of Hearing Aids

(*Continued from page 6*)

ured by a meter which registered in decibels the output for each input level. Thus it was possible to determine the maximum acoustic energy output, and the maximum acoustic gain for each instrument at different volume-control settings.

A third aspect of performance studied was that of quality of the transmitted speech. Speech was presented to the hearing aid in the manner described above to listeners, now listening in quiet, at a comfortable listening level. The listeners were asked to judge the quality of the speech from each hearing aid and to compare it with a similar sample of speech transmitted over a high fidelity system. Samples from the hearing aid and the standard system could be alternated as many times as the listeners required in order to make a judgment. Each instrument, at several tone-control settings, was thus rated for quality on a 7-point rating scale.

Summary of Results

1. Each instrument studied has a maximum capacity power output beyond which speech, regardless of the input intensity, will not be further amplified. This maximum for the major portions of the instruments studied ranged from 119 to 129 decibels (SPL).

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2. None of the hearing aids studied, when set at maximum volume-control setting, caused painful stimulation for the ears of normal listeners, even when the speech input reached a level equivalent to 100 decibels (SPL).

3. Wide differences in instruments were found with regard to sensitivity. This is to say, instruments vary widely in terms of the lowest input level at which speech can be made intelligible. Thus, with an effective hearing loss of 75 decibels, the poorest instrument required a minimum input level of 80 decibels before speech could be understood, while under the same conditions the best instrument required an input level of only 30 decibels.

4. The instruments vary but little in terms of the maximum hearing loss which they are able to override at high input speech levels. With sufficient input level the weakest instrument is able to make speech intelligible for a hearing loss of 75 decibels; the most powerful instrument for a hearing loss of 90 decibels.

5. The quality rating data show a considerable variation among hearing aids with regard to fidelity, or accuracy of speech transmission as judged by normal listeners. There is, however, no clear correlation between the quality rating of an instrument and its performance as measured by the methods described above. Obviously speech may be intelligible even though its quality varies greatly from that which is considered high fidelity.

The tests described above by no means exhaust the possibilities for evaluating the performance of hearing aids. We believe, however, that the more important characteristics from the standpoint of their performance have been studied. The experimental evidence shows that some instruments are outstanding in their performance and that there is little choice among them. There are others which are rather mediocre and could be of value only to persons having mild hearing losses. There is also a middle group which are suitable for all except the most severely deafened patients. A choice within these three groups would rest upon factors other than performance.